Mathletics

for the New Zealand Curriculum

5

Mathematics



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A 3P Learning Product

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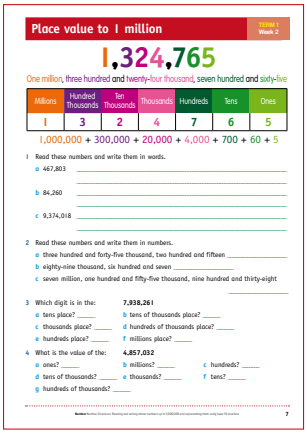
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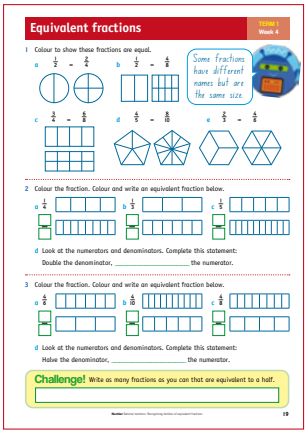
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Mathletics Student Book





New Zealand Curriculum Alignment

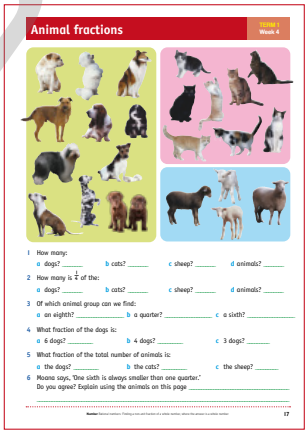
This edition fully aligns each student page with the refreshed New Zealand Curriculum: Mathematics and Statistics Years 0–8, 2025. The New Zealand Curriculum teaching sequence statements appear on each student page.

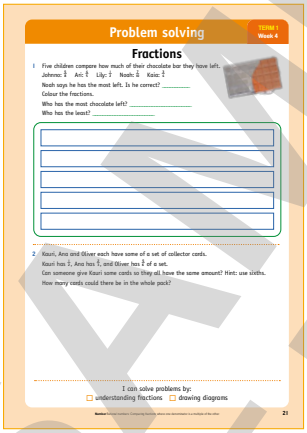


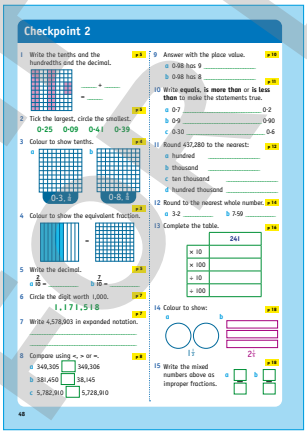
Knowledge and Practices

The **Mathletics Programme** develops the **knowledge** students need to build a deep understanding of mathematics and statistics — including number structures, algebraic thinking, measurement, geometry, statistics and probability.

Students build their **practices** by focusing on key facts, concepts and procedures, such as patterns, place value and the structure of the base-10 system. They develop the **skills, strategies and processes** required to reason, model and solve problems. Through these practices, students apply what they know to connect ideas, identify patterns and relationships, and explain their reasoning with confidence.







Integrated Problem-Solving

Includes problem-solving that actively builds students' problem-solving capabilities.

Regular Checkpoints

Checkpoints appear both at mid-term and end of each term to review and assess key concepts.



Hands-on Activities

Various hands-on activities are included in each term, asking students to measure and make, count and compare, using objects from around the classroom or home.



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Year 5 Knowledge and Practices

The New Zealand Curriculum Mathematics and Statistics 2025

Knowledge	Practices	Pages
Number — Number structures		
The base 10 number system extends to millions (1,000,000).	Reading, writing, comparing, and ordering whole numbers up to 1,000,000 and representing them using base 10 structure	7, 8, 9, 10
Factors are whole numbers that divide another number exactly. Factor pairs are two whole numbers that multiply together to give another whole number.	Finding factor pairs for numbers that result from multiplying any two whole numbers between 1 and 10	53, 54
Rounding can support predicting or estimating the result of a calculation. Rounding is based on identifying the nearest place value or unit (ten, hundred, thousand) for a given number; a number line supports this.	Rounding whole numbers to the nearest hundred thousand, ten thousand, thousand, hundred, or ten	12, 13, 14, 15, 84
	Rounding tenths or hundredths to the nearest whole number	14, 15
	Counting forwards and backwards in 11s and 12s from multiples of the counting unit	124
	Counting in 1,000s, 10,000s and 100,000s from any whole number up to 100,000	67
Negative numbers are to the left of 0 on a horizontal number line and below 0 on a vertical number line. Negative numbers are represented symbolically with a negative sign (−) and named 'negative' along with the numeral (e.g. −4 is named negative four). Zero is neither positive nor negative. Negative numbers arise in a range of situations (e.g. debt, temperature).	Counting backwards through 0 to include negative whole numbers	146, 147, 148, 149, 150
Number — Operations		
Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods. Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping, and renaming.	Adding and subtracting increasingly large whole numbers	28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41
Division can be represented as grouping, sharing, or an area model and larger numbers can be divided using a standard written algorithm, where appropriate. Standard written algorithms for multiplication and division rely on place value, regrouping, and renaming. Division may result in a whole number quotient or a quotient with a remainder, represented as a whole number.	Memorising multiplication and corresponding division facts for 2s to 12s	50, 51, 52, 54, 56, 57, 58, 59, 60, 69, 77, 78, 124, 125
	Applying mental strategies, number facts, derived facts, factor pairs, and multiples to multiply and divide increasingly large numbers	51, 55, 61, 62, 63, 64, 76, 77, 78, 79, 80, 81, 82, 118, 120, 124, 125, 126, 127, 128
	Multiplying three-digit and four-digit numbers by a one-digit number and multiplying two two-digit numbers	119, 120, 121, 128
	Dividing up to four-digit whole numbers by a one-digit divisor, with a remainder	64, 81, 82, 83, 84, 85, 129, 130, 131, 132, 133
Number — Rational Numbers		
Hundredths can be created by dividing whole numbers by 100 and can be expressed as fractions or decimals.	Reading, writing, and representing tenths and hundredths as fractions and decimals	2, 3, 4, 5, 6, 10, 70, 98
	Comparing tenths or hundredths as fractions and decimals	11, 70
	Comparing and ordering numbers with up to two decimal places (e.g. 0·12 < 0·2, 3·55 < 3·84)	5, 6, 11
	Memorising and using decimal equivalents of ½, ¼, and ¾ and fractions with denominators 5 or 10 or 100	71, 72, 100, 101
Percentages are decimal fractions with denominators of 100; they are represented using the percent (%) symbol.	Converting common percentages (10%, 25%, 50%) to fractions and decimals	99, 100, 101, 102
	Dividing one-, and two-digit whole numbers by 10 or 100 to make decimals and identify tenths and hundredths places	16
	Multiplying numbers with up to two decimal places by 10 and 100	16
	Comparing fractions where one denominator is a multiple of the other	20, 21, 22, 23
Equivalent fractions can be generated using common factors.	Recognising families of equivalent fractions	19, 23
	Recognising equivalent mixed numbers and improper fractions	18
Fractions should have the same denominator before using them in addition or subtraction.	Adding and subtracting fractions with the same denominator or when one denominator is a multiple of the other, including improper fractions (e.g. ⅔ + ⅓ = ⅞)	24, 25
	Adding and subtracting decimals to two decimal places (e.g. 1·31 + 0·22 = 1·53)	6, 151, 152, 153, 154, 155
Multiplication, division, fractions, decimals, and percentages can be used to solve problems involving relative quantities and measures.	Finding a non-unit fraction of a whole number, using multiplication and division facts and where the answer is a whole number	17, 104, 105
	Finding a whole set from a fractional part of the set (e.g. if 8 is ⅖ of a set, what is the whole set?)	105, 106
	Finding common percentages (10%, 25%, 50%) of whole numbers	101, 102, 103, 107
	Finding the whole (100%) when given 25% or 50%	106
Number — Financial mathematics		
Money uses our decimal place-value system to two decimal places.	Calculating the total cost of items costing dollars and cents and the change from the nearest ten dollars	40, 42, 151, 152, 153, 154, 155, 185
	Representing currency values of mixed dollars and cents using decimal notation	40, 42, 73
	Rounding money amounts to the nearest dollar	15, 40
Algebra — Equations and relationships		
The relative size of expressions involving numbers can be communicated using "greater than" (>), "less than" (<), and equals (=).	Completing number sentences that involve addition and subtraction by using equality (=) and inequality (<, >) symbols (e.g. 2,456 + 203,938 ▢ 3,456 + 231,930; 2,456 × 2 ▢ 1,228 × 4)	29, 50, 54
	Checking the truth of number sentences and completing open number sentences	6, 28, 54, 61, 77, 80, 84
Growing patterns can increase or decrease by the addition or subtraction of a constant (arithmetically) or multiplication or division by a constant (geometrically).	Recognising, continuing, creating, and describing growing patterns that change by a constant amount (e.g. 3, 4·5, 6, 7·5 ...)	59, 65, 66, 67, 68, 69

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Year 5 Knowledge and Practices

The New Zealand Curriculum Mathematics and Statistics 2025

Knowledge	Practices	Pages
Measurement — Measuring		
Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.	Accurately measuring length with a ruler, mass (weight) with scales, capacity with measuring jugs, temperature with a thermometer, and duration with a timer, using appropriate metric or time-based units or a combination of units (e.g. 2 hours and 30 minutes)	43, 44, 47, 91, 95, 108, 109, 110, 112, 182, 183, 184, 185, 186
Measurements can be communicated using mixed or decimal units. There are 1,000 millimetres in a metre, 10 millimetres in a centimetre, 100 centimetres in a metre and 1,000 metres in a kilometre.	Converting metric units of length (m and cm)	73, 108, 109, 110, 183
The areas of rectangles (including squares) can be calculated by multiplication of side lengths.	Approximating the areas of irregular shapes covered with squares, half squares, and partial squares	113, 114, 117
	Calculating the areas of rectangles (including squares) using multiplication of side lengths	113, 114, 115, 116, 117
	Calculating the perimeters of regular polygons and other 2D shapes with straight sides	110, 111, 112, 116
	Recognising that shapes with the same area can have different perimeters, and vice versa	116
Volume is a measure of regions in three-dimensional space.	Measuring the volumes of rectangular prisms (cuboids) filled with centicubes by determining the number of cubes in each layer and then multiplying by the number of total layers	45, 46, 47
Angle classification can aid the estimation of angle size. Angles are classified with reference to the benchmark angles of 90°, 180°, and 360°. Acute angles are less than 90°. Right angles are exactly 90°. Obtuse angles are more than 90° and less than 180°. Reflex angles are more than 180° and less than 360°.	Describing and classifying angles and turns using the terms acute, right, obtuse, straight, and reflex	172, 173, 174, 175, 176
	Classifying and constructing angles up to 180°, using a protractor	172, 173, 174, 175, 176
A point in time is typically measured in hours and minutes past midnight. Clocks relate seconds to minutes and minutes to hours according to a system based on 60.	Telling the time on analogue and digital clocks	87, 89
	Finding the duration of periods of time involving a.m. and p.m. notation and 24-hour time	86, 88, 89, 90, 92, 93, 94, 95
Geometry — Shapes		
A prism is a 3D shape with two identical, parallel ends and flat faces.	Identifying, classifying, and describing the attributes of prisms, using cross sections, faces, edges, and vertices	134, 135, 137
Parallel lines are always the same distance apart and never meet. Perpendicular lines intersect at right angles (90°).	Identifying parallel and perpendicular lines, including those forming the sides of polygons	177
Geometry — Spatial reasoning		
A net is a 2D representation of the surfaces of a 3D unfolded shape.	Connecting 3D shapes with nets	136, 138
A reflection is when a shape is flipped over a line, creating a mirror image. A translation is when a shape is slid from one place to another without being turned. A rotation is when a shape is turned around a fixed point.	Describing the transformations performed (reflections, translations, rotations) on 2D shapes	178, 179
Geometry — Pathways		
An alphanumeric grid reference is a system that divides a map into labelled rows (letters) and columns (numbers), so that each square can be identified by combining a letter and a number (e.g. A1, B2).	Interpreting and creating grid maps to plot positions and pathways, using grid references and directional language, including the four main compass points	95, 180, 181
Statistics — Developing knowledge from data		
Measurements for continuous numerical data need to have the place value for rounding specified (e.g. to the nearest centimetre).	Collecting continuous numerical data by taking measurements, and then applying specified rounding rules	156, 166
Bivariate data is data in a set that has two variables for each subject	Collecting bivariate data with two categorical variables (e.g. what students in our class do at lunch time, and their gender)	162, 164
Statistics — Visualisation of data		
Continuous numerical data can be organised in a table by grouping data into specific ranges of values.	Creating tables for continuous numerical data, using groupings (e.g. 0–0.99, 1–1.99, 2–2.99)	156, 159, 167
Paired categorical data can be visualised with a clustered bar graph; one variable is represented on the horizontal axis, the other variable is shown by coloured bars clustered side-by-side, and the colours are explained in a key.	Creating clustered bar graphs for paired categorical data	158, 162, 163
Statistics — Interpretation of data		
Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation's key features: its shape (e.g. the number of peaks); its middle group(s) (where the middle of the data lies); its spread (how spread the data is from the minimum (lowest) value to the maximum (highest) value).	Answering questions about the frequency of particular values or groups of values from a table for continuous numerical data	168, 169
	Answering questions about bivariate data in which a specific category in one variable appears more frequently than a specific category in another variable	161, 162, 164, 165
	Interpreting data visualisations	156, 157, 158, 159, 160, 161, 163
Probability — Experimental probability		
Situations that involve chance, uncertainty, and randomness are called chance-based situations. Probability can be used to describe such situations. A trial is a single run of a chance-based situation that results in one of a set of possible outcomes.	Conducting repeated chance experiments or games, identifying the outcomes, and describing differences between them using likelihood vocabulary	140, 141, 142, 143
The possible outcomes for a chance-based situation can be arranged into events. The probability of an outcome is the chance of it occurring. Probabilities are associated with values between 0 and 1, where: 0 is impossible, between 0 and 0·5 or ½ ranges from very unlikely to unlikely, 0·5 or ½ is equally likely, between 0·5 or ½ and 1 range from likely to very likely, 1 is certain.	Identifying the likelihood of an everyday event as being impossible, unlikely, even-chance, likely, or certain (e.g. the event 'the sun will rise tomorrow' is certain)	139, 142, 143
Likelihood can be visualised using a number line from 0 to 1. The sample space is the set of all possible outcomes of an experiment. The probability of an event, if events are believed to be equally likely, is the number of ways the event can happen divided by the total number of possible outcomes. The sum of the probabilities of all outcomes is equal to 1.	Placing everyday events on a number line according to their likelihood (e.g. placing the event 'you will eat something later today' between ½ and 1 as 'likely' or 'very likely')	139, 140, 142, 143

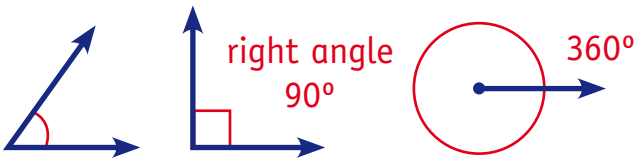
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Dictionary

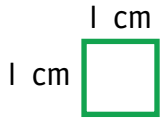
angle

The amount of turning between two lines that meet at a point

Measured in degrees



area



The size of a surface

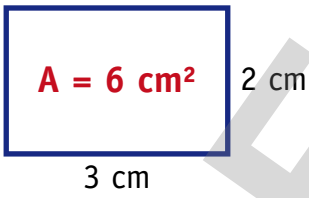
Measured in squares

1 square centimetre = 1 cm²

A = 1 cm²

Rectangular area = length × width

A = L × W



ascending order

In order from smallest to largest

67, 804, 1,007, 5,475, 7,862

capacity

The amount a container can hold

Measured in cups, litres (L) and millilitres (mL)

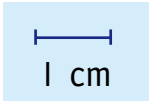


centimetre (cm)

A unit of length

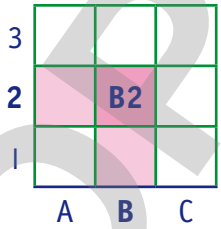
10 mm = 1 cm

100 cm = 1 m



coordinates

Position on a grid using letters and numbers for the rows and columns



data

A collection of information

Can be recorded in tally marks

Favourite sports		
Sport	**Tallies**	**Total**
Soccer	𝍸 𝍸 ||	12
Netball	𝍸 |	6
Rugby	𝍸 |||	8
Chess	𝍸 𝍸 |	11

decimal number

A number that has a decimal point

e.g. 0·3, 75·1

descending order

In order from largest to smallest

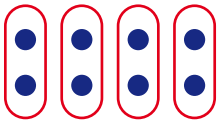
3,927, 1,423, 875, 610, 40

digit

The numerals that are used to write numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

division (÷)

Sharing into equal groups

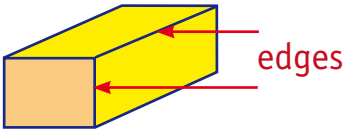


4 groups of 2

8 ÷ 2 = 4

edge

Where two surfaces meet



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Dictionary

equation

Number sentence

3 + 2 = 5

equivalent

Of equal value

$\frac{1}{2} = \frac{2}{4}$ 1 + 4 = 2 + 3

estimate

Make a good guess

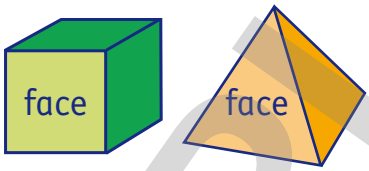


Around 20

21 + 38 = about 20 + 40 = around 60

face

A flat surface of a solid shape



factor

A number that divides into another number exactly

A number to be multiplied

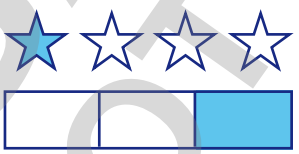
factor × factor = product

3 × 4 = 12 12 ÷ 4 = 3

3 and 4 are factors of 12

fraction

A part of a whole or a group



$\frac{1}{4}$ coloured

$\frac{1}{3}$ coloured

$\frac{1}{2}$ → numerator

→ denominator

grams (g)

A unit of mass (weight)

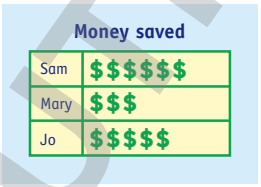
1,000 g = 1 kg

graph

A diagram that shows a collection of data



bar graph



picture graph



dot plot

improper fraction

A fraction greater than 1

The numerator is larger than the denominator → $\frac{7}{4}$

kilogram (kg)

A unit of mass for weighing things

1 kilogram = 1,000 grams

1,000 kilograms = 1 tonne

litre (L)

A unit of capacity

1 L = 1,000 millilitres (mL)

mass (weight)

The amount of material that makes up an object. Measured in grams, kilograms and tonnes

metre (m)

A unit of length

1 m = 100 cm 1,000 m = 1 km

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Dictionary

millilitre (mL)

A unit of capacity

1,000 mL = 1 L

millimetre (mm)

A unit of length

10 mm = 1 cm

mixed numbers

A whole number with a fraction $1\frac{1}{4}$

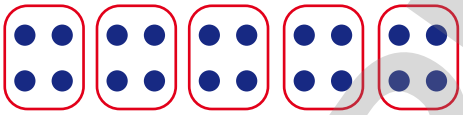
multiple

The product (answer) when you multiply a given number by another

Multiples of 3 are 6, 9, 12, 15, 18, 21...

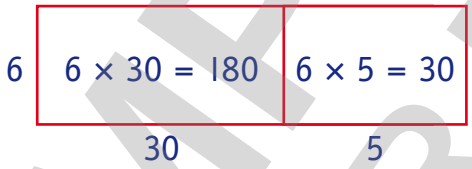
multiplication (×)

Find the total of a number of equal groups or equal rows



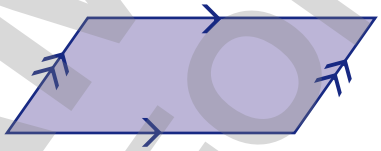
5 × 4 = 20

6 × 35 =



parallelogram

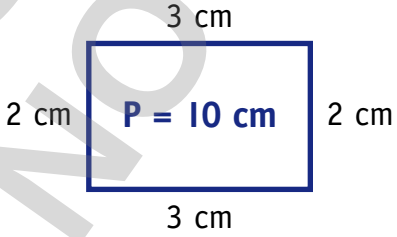
A quadrilateral with opposite sides parallel



perimeter

Distance around the outside

Add side lengths: 3 + 3 + 2 + 2 = 10 cm



place value

The value of a numeral depending on its position in a number

396 = 300 + 90 + 6

754 = 7 hundreds + 5 tens + 4 ones

8·57 = 8 ones + 5 tenths + 7 hundredths

polygon

A closed shape with 3 or more straight sides

e.g.



polygons – regular

2D shapes with all sides the same length and all angles the same size



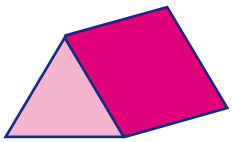
polygons – irregular

2D shapes with sides and angles of different sizes are **irregular** polygons



prism

A 3D shape with identical ends. All other faces are rectangles. The ends give a prism its name.



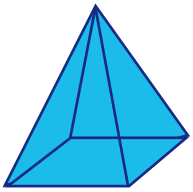
triangular prism

product

When numbers are multiplied, the answer is called the product.

pyramid

A 3D object with one flat base. All other faces are triangles coming to a point at the apex. The base shape gives a pyramid its name.



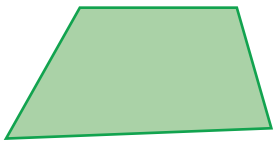
square pyramid

SAMPLE COPY NOT FOR DISTRIBUTION

Dictionary

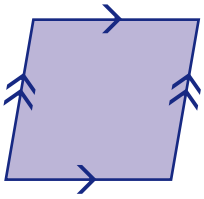
quadrilateral

A 2D shape with 4 straight sides



rhombus

A quadrilateral with all sides equal and opposite sides parallel. It is a special parallelogram.



rounding (to nearest 10)

Round down ← 1 2 3 4

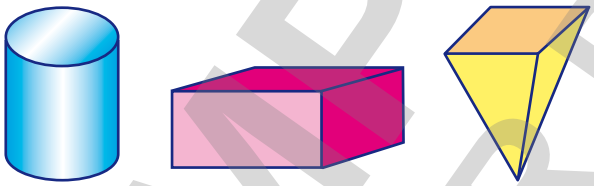
Round up → 5 6 7 8 9

e.g. 675 → 700
(rounded to the nearest 100)

4,492 → 4,000
(rounded to the nearest 1,000)

three-dimensional objects (3D)

Solid shapes that have length, width and height



time



analogue



digital

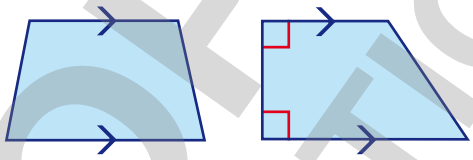
1 hour = 60 minutes

1 minute = 60 seconds

trapezium

A quadrilateral that has one pair of parallel sides

Some have 2 right angles



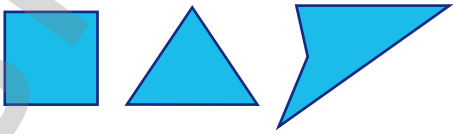
triangle

A 2D shape with 3 straight sides



two-dimensional shapes (2D)

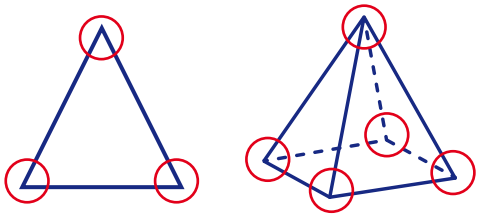
Shapes that only have length and width



vertex

2D: where 2 straight lines meet

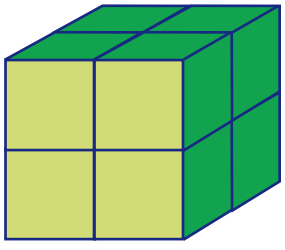
3D: where 3 or more edges meet



1 vertex, 3 vertices

volume

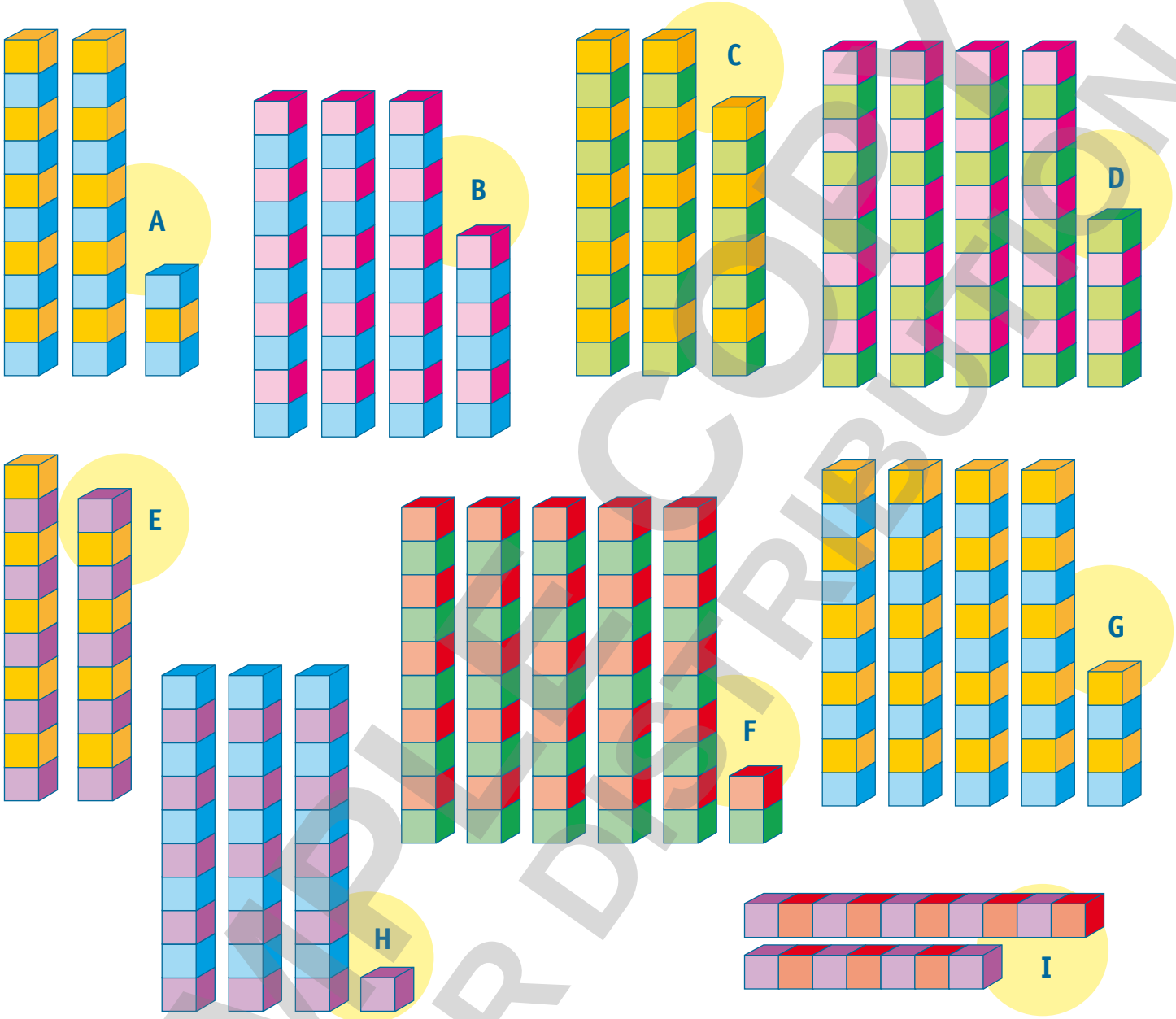
The amount of space a solid object takes up



8 cm³

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Wholes and tenths



Each complete tower has 10 cubes. **A** has 23 cubes. 2 complete towers and $\frac{3}{10}$. $2\frac{3}{10}$ or 2·3

1 Write each group as a fraction and a decimal.

Group	Fraction	Decimal
B		
C		
D		
E		

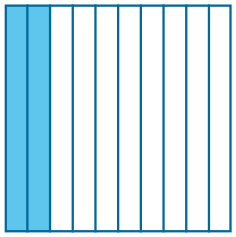
Group	Fraction	Decimal
F		
G		
H		
I		

2 How many cubes are needed to build each group?

A _____ B _____ C _____ D _____ E _____ F _____ G _____ H _____ I _____

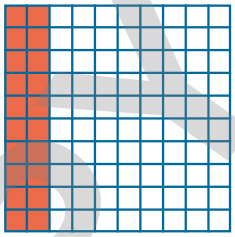
SAMPLE COPY
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Tenths and hundredths



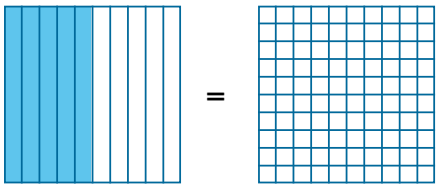
This square is cut into tenths.
$\frac{2}{10}$ is coloured blue.

$$\frac{2}{10} = \frac{20}{100}$$

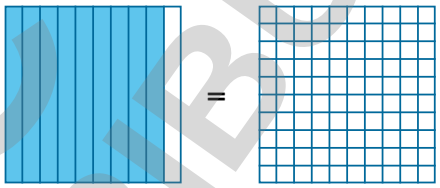


This square is cut into hundredths.
$\frac{20}{100}$ is coloured red.

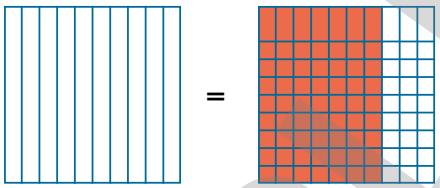
1 Complete the fractions. Colour each blank grid to match.

a 

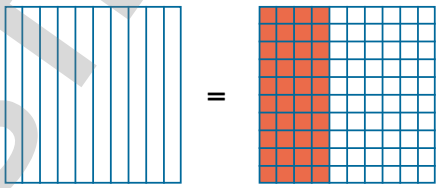
$\frac{5}{10} = \frac{\quad}{100}$

b 

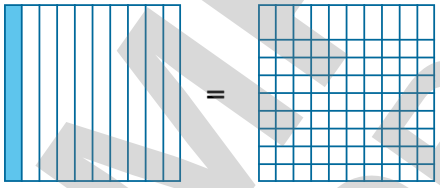
$\frac{9}{10} = \frac{\quad}{100}$

c 

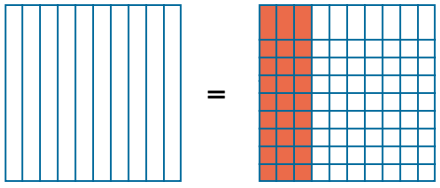
$\frac{\quad}{10} = \frac{70}{100}$

d 

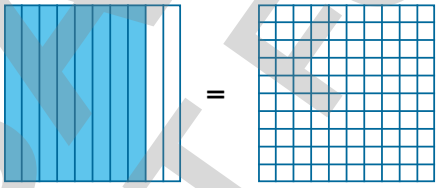
$\frac{\quad}{10} = \frac{40}{100}$

e 

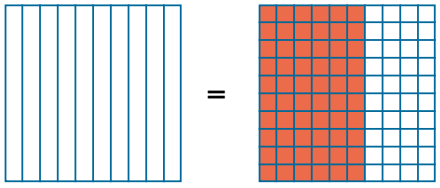
$\frac{1}{10} = \frac{\quad}{100}$

f 

$\frac{\quad}{10} = \frac{30}{100}$

g 

$\frac{8}{10} = \frac{\quad}{100}$

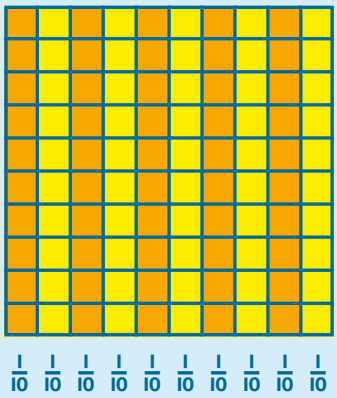
h 

$\frac{\quad}{10} = \frac{60}{100}$

2 Complete the pattern. $\frac{1}{10} = \frac{\quad}{100}$ $\frac{2}{10} = \frac{\quad}{100}$ $\frac{3}{10} = \frac{\quad}{100}$ $\frac{4}{10} = \frac{\quad}{100}$

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Tenths on a hundred grid



$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$

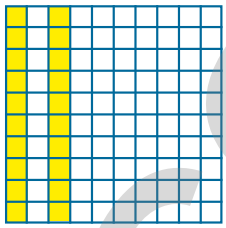
$\frac{10}{10}$ = 1 whole $\frac{100}{100}$ = 1 whole

Place value

Ones		Tenths	Hundredths
3	•	5	7
1	•	8	

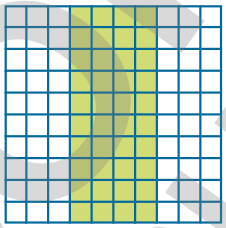
1 How many tenths are coloured? Write the decimal.

a



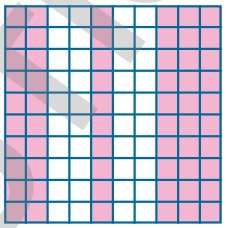
$\frac{__}{10}$ = 0· $____$

b



$\frac{__}{10}$ = 0· $____$

c



$\frac{__}{10}$ = 0· $____$

2 In question 1, how many hundredths are coloured?

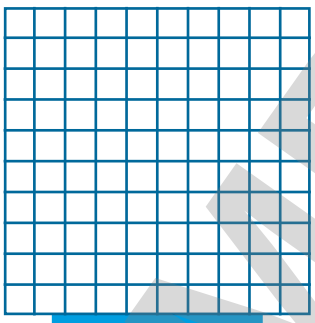
a $\frac{____}{100}$ = 0· $____$

b $\frac{____}{100}$ = 0· $____$

c $\frac{____}{100}$ = 0· $____$

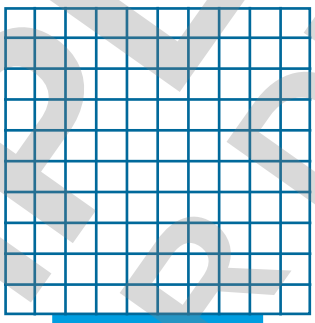
3 Colour to show tenths.

a



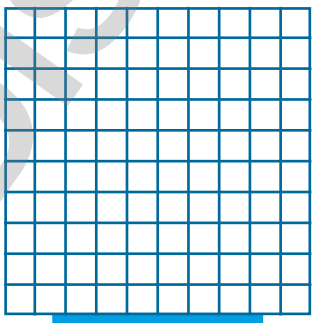
0·1, $\frac{1}{10}$

b



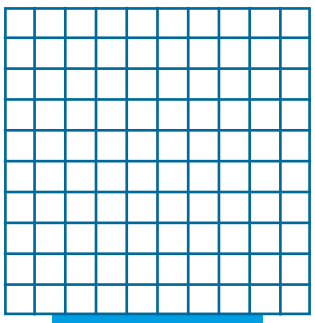
0·8

c



$\frac{3}{10}$

d



0·9

4 Write these on the number line. **0·6** **0·1** **0·8** **0·5**



Challenge!

A calculator is showing these dollar amounts.
Write them using a $ sign.

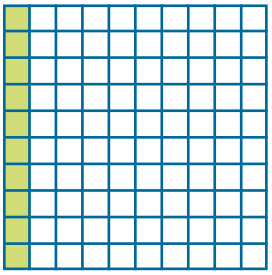
a 3·4 $\square$ **b** 1·8 $\square$ **c** 2·9 $\square$ **d** 14·5 $\square$



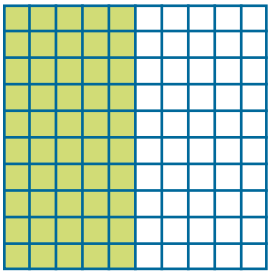
SAMPLE COPY
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Tenths and hundredths

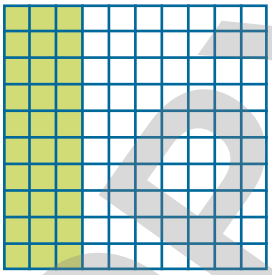
1 Write the tenths and the decimal.

a 

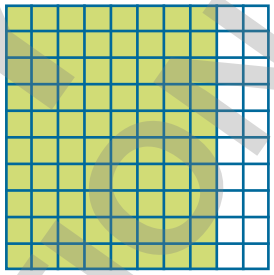
_____ = 0· _____

b 

_____ = _____

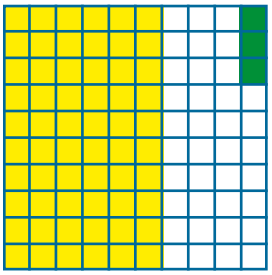
c 

_____ = _____

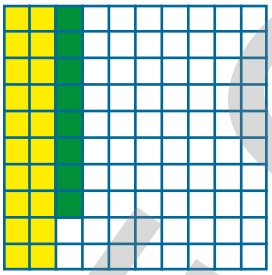
d 

_____ = _____

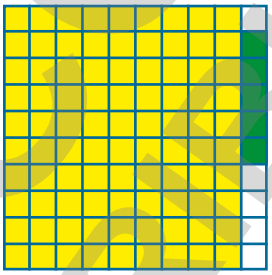
2 Write the tenths and the hundredths and the decimal.

a 

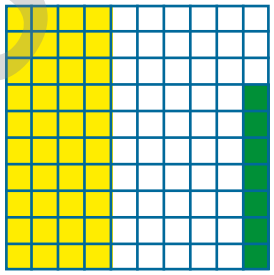
$\frac{6}{10} + \frac{3}{100} = 0{\cdot}63$

b 

_____ + _____ = _____

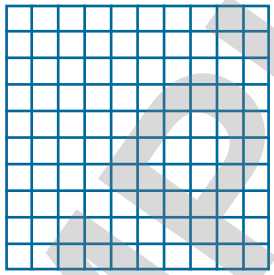
c 

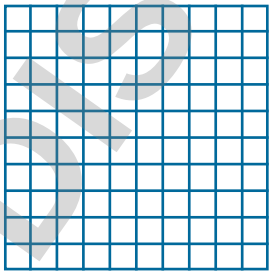
_____ + _____ = _____

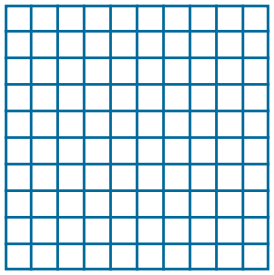
d 

_____ + _____ = _____

3 Colour the tenths and the hundredths separately to show:

a 0·54 

b 0·28 

c 0·07 

4 Circle the number in the tenths place.

a 0·47 **b** 1·35 **c** 7·99 **d** 13·58

5 Underline the number in the hundredths place.

a 2·57 **b** 9·05 **c** 24·74 **d** 19·32

6 Write these decimals from largest to smallest. 0·18 0·61 0·09 0·35 0·23 0·59

_____

7 Write these decimals on the number line. 0·4 0·08 0·7 0·25 0·97 0·5



8 Write these decimals on the number line. 1·2 1·78 1·53 1·95 1·31 1·64



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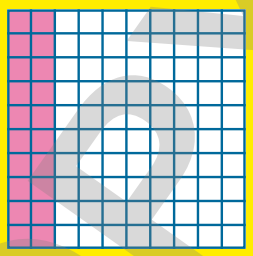
Tenths and hundredths

1 Use <, >, = to make these statements true.

a 0·3 _____ 0·7 **b** 0·6 _____ 0·60

c 0·5 _____ 0·6 **d** 0·6 _____ 0·2

e 0·9 _____ 0·5 **f** 0·3 _____ 0·30



$\frac{2}{10} = 0{\cdot}2$

$\frac{20}{100} = 0{\cdot}20$

$0{\cdot}2 = 0{\cdot}20$

2 Write the decimal.

a $\frac{1}{10}$ _____ **b** $\frac{7}{10}$ _____ **c** $\frac{3}{10}$ _____

d $\frac{9}{10}$ _____ **e** $\frac{4}{10}$ _____ **f** $\frac{2}{10}$ _____

3 Write as tenths and hundredths.

a $0{\cdot}5 = \frac{__}{10} = \frac{__}{100}$ **b** $0{\cdot}8 = \frac{__}{10} = \frac{__}{100}$ **c** $0{\cdot}6 = \frac{__}{10} = \frac{__}{100}$

d $0{\cdot}1 = \frac{__}{10} = \frac{__}{100}$ **e** $0{\cdot}7 = \frac{__}{10} = \frac{__}{100}$ **f** $0{\cdot}4 = \frac{__}{10} = \frac{__}{100}$

g $0{\cdot}2 = \frac{__}{10} = \frac{__}{100}$ **h** $0{\cdot}9 = \frac{__}{10} = \frac{__}{100}$ **i** $0{\cdot}3 = \frac{__}{10} = \frac{__}{100}$

4 Tick the correct statements and cross the incorrect statements.

a 1·6 = 1·60 ____ **b** 0·9 > 0·29 ____ **c** 3·2 = 2·80 ____

d 5·34 < 5·5 ____ **e** 2·70 = 2·7 ____ **f** 4·18 < 4·3 ____

g 0·9 > 1·1 ____ **h** 7·10 = 7·01 ____ **i** 9·3 < 9·25 ____

5 **a**
$$\begin{array}{r} 0.12 \\ +\ 2.50 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 3.42 \\ +\ 2.34 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} 1.15 \\ +\ 2.25 \\ \hline \\ \hline \end{array}$$

d
$$\begin{array}{r} 3.25 \\ +\ 4.25 \\ \hline \\ \hline \end{array}$$





6 Now use a calculator to work out question 5.
Write what the calculator shows.

a _____ **b** _____ **c** _____ **d** _____

e What is missing? _____

f Why? _____



Mastery Checklist

I can:
- ☐ write fractions and decimals
- ☐ make connections between fractions and decimals
- ☐ order and compare decimals
- ☐ add decimals

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Number Rational numbers: Reading and writing tenths and hundredths as fractions and decimals; Comparing numbers with up to two decimal places; Adding decimals to two decimal places;
Algebra Equations and relationships: Checking the truth of number sentences

Place value to 1 million

TERM 1
Week 2

1,324,765

One million, three hundred and twenty-four thousand, seven hundred and sixty-five

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	3	2	4	7	6	5

1,000,000 + 300,000 + 20,000 + 4,000 + 700 + 60 + 5

1 Read these numbers and write them in words.

a 467,803 _____

_____

b 84,260 _____

_____

c 9,374,018 _____

_____

2 Read these numbers and write them in numbers.

a three hundred and forty-five thousand, two hundred and fifteen _____

b eighty-nine thousand, six hundred and seven _____

c seven million, one hundred and fifty-five thousand, nine hundred and thirty-eight

_____

3 Which digit is in the: **7,938,261**

a tens place? _____ b tens of thousands place? _____

c thousands place? _____ d hundreds of thousands place? _____

e hundreds place? _____ f millions place? _____

4 What is the value of the: **4,857,032**

a ones? _____ b millions? _____ c hundreds? _____

d tens of thousands? _____ e thousands? _____ f tens? _____

g hundreds of thousands? _____

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Compare and order numbers

TERM 1
Week 2

1 Compare these numbers using <, > or =.

a 789,455 ☐ 87,945

b 187,450 ☐ 287,945

c 6,792 ☐ 50,792

d 392,075 ☐ 392,071

e 78,329 ☐ 78,429

f 270,419 ☐ 271,038

g 132,315 ☐ 132,315

h 4,373,256 ☐ 4,373

i 890,375 ☐ 890,315

2 a Highlight the smallest number of animals in this chart.

b Circle the animal with the largest population.

c Write the numbers in order from smallest to largest.

Animal populations	
Fantail	2 million
Kiwi	70 thousand
New Zealand Fur seal	12 thousand
Kakapo	250

Population of Small Countries

Dominica	San Marino	Monaco	Montserrat
71,625	33,931	39,242	4,992

3 a Circle the smallest number. b How do you know it is the smallest?

c Put these populations in order from smallest to largest.

4 a Circle the highest amount in sales.

b Highlight the period when sales were lowest.

c What was the total in sales for this year?

d Write the numbers in order from lowest to highest.

Period	Sales
Jan-Mar	$214,983
Apr-Jun	$320,491
Jul-Sep	$234,849
Oct-Dec	$127,845

Challenge!

Put all the numbers from questions 2-4 in order from largest to smallest.

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Te reo Māori numbers

TERM 1
Week 2

1 Write in te reo Māori.

a 7 _____ b 9 _____ c 3 _____

d 5 _____ e 8 _____ f 6 _____

g 2 _____ h 4 _____ i 0 _____



2 Write in te reo Māori words.

a

one	ten
kotahi	tekau

b

one	hundred

c

one	thousand

d

one	ten	thousand

e

one	hundred	thousand

3 Write in te reo Māori words.

a 80,000 _____ b 600,000 _____

c 70,000 _____ d 300,000 _____

e 20,000 _____ f 900,000 _____

4 Write the number.

a whitu rau, toru tekau mā tahi _____

b whā mano, ono rau iwa tekau mā rima _____

c waru tekau mā toru mano, kotahi rau rima tekau mā iwa _____

d rua rau whitu tekau mā toru mano, kotahi rau waru tekau mā rua _____

5 Write in te reo Māori words.

a 715,462 _____

_____

b 389,514 _____

_____

6 Write each number. Compare using <, > or =.

a rima rau toru tekau mā whitu ☐ rima rau rua tekau mā tahi

_____

b rua mano, kotahi rau ono tekau mā iwa ☐ rua tekau mano, toru rau mā rima

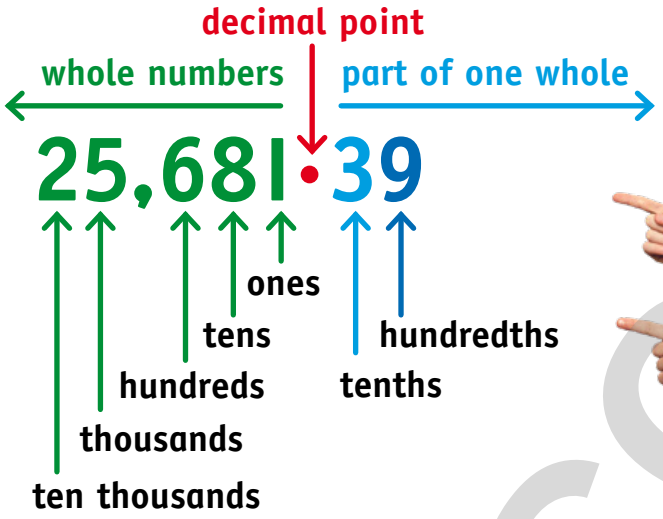
_____

c whā rau mā waru mano, waru rau mā rima ☐ toru rau mā ono tekau mano, whā tekau

_____

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Place value with decimals





1 Complete the table.

Number	Ten thousands	Thousands	Hundreds	Tens	Ones	·	Tenths	Hundredths
a 38,241·26	3	8	2	4	1	·	2	6
b 34,710·32								
c 1,987·20								
d 8,394·03								
e 643·37								
f 765·2								
g 10·26								
h 35·96								
i 9·76								
j 0·32								
k 0·09								

2 Write true or false.

a 7·40 has 40 hundredths. _____ b 246·90 has 246 hundredths. _____

c 32,495·72 has 72 hundredths. _____ d 5,493·80 has 8 hundredths. _____

e 9·32 has 9 ones. _____ f 7·49 has 9 tenths. _____

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Number Number structures: Reading and writing whole numbers up to 1,000,000 and representing them using base 10 structure; Rational numbers: Reading, writing and representing tenths and hundredths as decimals

Compare and order decimals

TERM 1
Week 2

1 Number the decimals in ascending order, from 1 (smallest) to 5 (largest).

a	[ ]	32·14	[ ]	32·35	[5]	32·86	[1]	32·09	[ ]	32·1
b	[ ]	957·49	[ ]	957·32	[ ]	957·09	[ ]	957·59	[ ]	957·00
c	[ ]	1,493·36	[ ]	1,493·02	[ ]	1,493·67	[ ]	1,493·15	[ ]	1,493·5

2 Write <, >, = to compare these decimals.

a	249·35	<	249·53	**b**	2,123·52	_____	2,123·25
c	354·73	_____	354·37	**d**	535·97	_____	535·79
e	3,746·8	_____	3,746·08	**f**	977·32	_____	977·23
g	0·68	_____	0·86	**h**	289·24	_____	289·42

3 Write a smaller decimal.

a	642·38	642·37	**b** 25,924·1 _____
c	36,541·63	_____	**d** 653·73 _____
e	846·03	_____	**f** 92,543·12 _____
g	84,903·1	_____	**h** 7,382·15 _____

4 Write a larger decimal.

a	642·38	642·39	**b** 25,924·1 _____
c	36,541·63	_____	**d** 653·73 _____
e	846·03	_____	**f** 92,543·12 _____
g	84,903·1	_____	**h** 7,382·15 _____

5 Write a decimal that is in between.

a	8·43	8·54	8·75	**b**	2·49	_____	2·83
c	16·37	_____	16·38	**d**	3,295·12	_____	3,295·26

6 Complete the patterns.

a 14·25, 14·35, 14·45, _____, _____, _____

b 8·72, 8·62, 8·52, _____, _____, _____

c 3·18, 3·28, _____, 3·48, _____, _____

Mastery Checklist

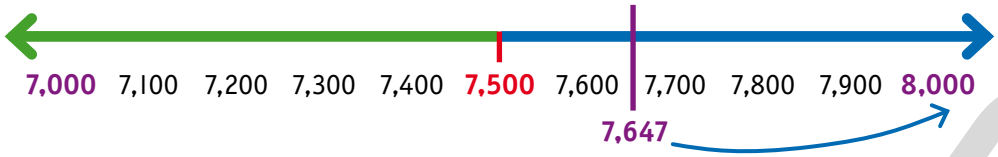
I can:
- ☐ read, write, represent, compare and order whole and decimal numbers
- ☐ recognise place value up to millions and down to hundredths
- ☐ read, write and compare numbers up to hundred thousands in te reo Māori

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Rounding numbers

TERM 1
Week 3

Round 7,647 to the nearest 1,000.



Round 228,984 to the nearest 100,000.



Rounding
1, 2, 3, 4 round down
Midpoint is 5
5, 6, 7, 8, 9 round up

To round a number to a **specific place value**, look at the **next place down**.

Round to the	
nearest 10	176,294 → 176,290
nearest 100	176,294 → 176,300
nearest 1,000	176,294 → 176,000
nearest 10,000	176,294 → 180,000
nearest 100,000	176,294 → 200,000

1 Round to the nearest ten.

a 74 _____
b 81 _____
c 25 _____
d 96 _____
e 123 _____
f 3,168 _____

2 Round to the nearest hundred.

a 654 _____ b 463 _____ c 971 _____
d 202 _____ e 1,018 _____ f 4,961 _____

3 Round to the nearest thousand.

a 7,398 _____ b 5,650 _____ c 1,427 _____
d 1,901 _____ e 53,006 _____ f 98,433 _____

4 Round to the nearest ten thousand.

a 54,621 _____ b 26,835 _____ c 93,582 _____
d 75,247 _____ e 341,782 _____ f 877,839 _____

5 Round to the nearest hundred thousand.

a 419,320 _____ b 125,278 _____ c 365,483 _____
d 856,112 _____ e 598,163 _____ f 602,184 _____

Challenge! **Complete the range.**

All numbers from ____ to ____ round to **700** when rounded to the nearest hundred.

All numbers from ____ to ____ round to **5,000** when rounded to the nearest thousand.

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Number Number structures: Rounding whole numbers to the nearest hundred thousand, ten thousand, thousand, hundred, or ten; a number line supports this

Estimation

TERM 1
Week 3

1 Estimate the answer before working.

		Estimate	Answer
a	58 + 64		
b	37 + 99		
c	72 + 63		
d	85 + 38		

		Estimate	Answer
e	124 + 132		
f	268 + 311		
g	406 + 192		
h	385 + 297		

2 Estimate answers first.

a In the treasure chest there were 183 rubies and 378 diamonds. How many jewels altogether?



Est. ☐

Ans. ☐

b Jock wrote 252 words on one page and 169 on the next. How long was his story?



Est. ☐

Ans. ☐

c Megan poured 95 mL of orange juice into a glass and then 289 mL of lemonade. How much was in the glass?



Est. ☐

Ans. ☐

d Write a problem for the answer.

_____

_____

Est. 680

Ans. 674

3 Write a story problem for these number sentences using the theme of **Pirates**. Estimate your answers by rounding numbers appropriately.

a 345 + 627 = _____

_____

_____

_____

_____

_____

b 258 + 429 = _____

_____

_____

_____

_____

_____

Challenge! Write three four-digit numbers. Estimate their total. Add them using a calculator. Were you close?

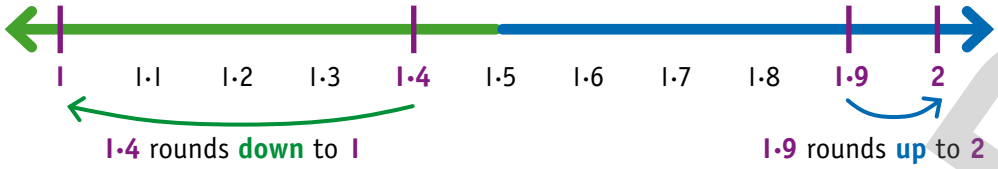
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Rounding tenths

TERM 1
Week 3

Round tenths to the nearest whole number.



1·4 rounds **down** to 1

1·9 rounds **up** to 2

Rounding
1, 2, 3, 4 round down
5, 6, 7, 8, 9 round up



1 Place these numbers on the number line.

a 0·8 **b** 2·1 **c** 4·7 **d** 1·3 **e** 3·4 **f** 2·6 **g** 0·5 **h** 4·2 **i** 3·9 **j** 1·8

2 Round the numbers in question 1 to the nearest whole number.

a _____ **b** _____ **c** _____ **d** _____ **e** _____

f _____ **g** _____ **h** _____ **i** _____ **j** _____

3 Round to the nearest whole number.

a 7·4 _____ **b** 10·1 _____ **c** 8·6 _____ **d** 0·8 _____ **e** 9·2 _____

f 15·5 _____ **g** 6·7 _____ **h** 20·9 _____ **i** 5·3 _____ **j** 16·5 _____

4 Bill rounded these decimals to the nearest whole number. Tick the correct answers. Correct the ones that are wrong.

Number	Bill's answer	Your answer
a 17·4	17	
b 4·2	5	
c 7·1	7	
d 16·3	17	

Number	Bill's answer	Your answer
e 15·9	16	
f 25·7	26	
g 8·5	8	
h 19·6	19	

5 Write 5 numbers that would round to 6.

6 Write a story problem for these number sentences using the theme of **Music**. Estimate your answers by rounding numbers appropriately.

a $56.25 + $28.80 = _____

_____

_____

_____

_____

b $99.20 + $4.65 = _____

_____

_____

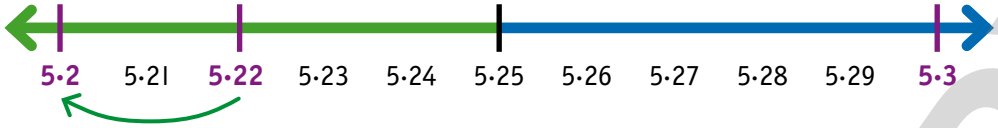
_____

_____

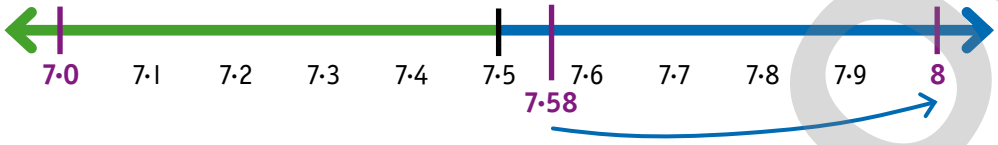
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Rounding hundredths

Round 5·22 to the nearest tenth.



Round 7·58 to the nearest whole number.



Rounding to a specific place value?

Round to the nearest **tenth**, look at the **hundredths digit**.
5·22 → 5·2

Round to the nearest **whole** number, look at the **tenths digit**.
7·58 → 8

1 **A**



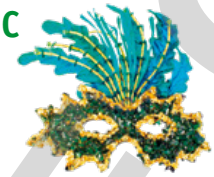
$11.59

B



$15.38

C



$9.71

D



$19.16

E



$24.39

F



$16.90

Write the price of each mask to the nearest dollar.

A _____ **B** _____ **C** _____ **D** _____ **E** _____ **F** _____

2 Round the same prices to the nearest 10 cents.

A _____ **B** _____ **C** _____ **D** _____ **E** _____ **F** _____

3 Maia had to round these decimals to the nearest whole number. Tick the ones she has correct and write the correct answers for the ones she has wrong.

Number	Maia's answer	Your answer
a 5·43	5	
b 23·09	24	
c 5·28	6	
d 10·72	11	

Number	Maia's answer	Your answer
e 7·84	8	
f 2·35	3	
g 18·51	18	
h 12·64	12	

4 Write 5 numbers that would round to 2·1.

Challenge! Write a story problem for $113.65 + $84.79 + $231.82.
Estimate then use a calculator to find the answer.

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× and ÷ by 10 and 100

Multiply

×10

Move each digit **one place to the left** (each digit becomes 10 times larger).

5 × 10 = 50

×100

Move each digit **two places to the left** (each digit becomes 100 times larger).

5 × 100 = 500

Divide

÷10

Move each digit **one place to the right** (each digit becomes 10 times smaller).

5 ÷ 10 = 0·5

÷100

Move each digit **two places to the right** (each digit becomes 100 times smaller).

5 ÷ 100 = 0·05

1 Multiply.

	×	×10	×100
a	4		
b	9		
c	10		
d	3		
e	12		

2 Divide.

	÷	÷10	÷100
a	7		
b	19		
c	6		
d	14		
e	2		

3 Complete the pattern.

a 4 × 10 = _____
40 × 10 = _____
400 × 10 = _____

b 600 ÷ 10 = _____
60 ÷ 10 = _____
6 ÷ 10 = _____

c 800 ÷ 10 = _____
80 ÷ 10 = _____
8 ÷ 10 = _____

4 Find the missing number.

a ☐ × 10 = 70 **b** ☐ × 100 = 500 **c** 80 ÷ ☐ = 8 **d** 300 ÷ ☐ = 3

5 Explain. How does multiplying by 10 differ from multiplying by 100?

_____

Mastery Checklist I can:
- ☐ round numbers to any place
- ☐ round decimals to tenths and whole numbers
- ☐ use rounding to estimate the answers to calculations
- ☐ use place value to multiply and divide by 10 and 100

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Animal fractions

TERM 1
Week 4







1 How many:

a dogs? _____ b cats? _____ c sheep? _____ d animals? _____

2 How many is $\frac{1}{4}$ of the:

a dogs? _____ b cats? _____ c sheep? _____ d animals? _____

3 Of which animal group can we find:

a an eighth? _____ b a quarter? _____ c a sixth? _____

4 What fraction of the dogs is:

a 6 dogs? _____ b 4 dogs? _____ c 3 dogs? _____

5 What fraction of the total number of animals is:

a the dogs? _____ b the cats? _____ c the sheep? _____

6 Moana says, 'One sixth is always smaller than one quarter.'
Do you agree? Explain using the animals on this page _____

_____

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Mixed numbers

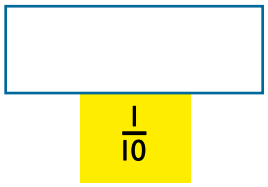
1 What fraction is coloured?

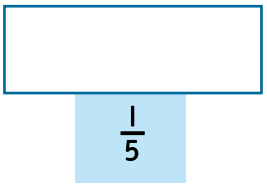
a  _____

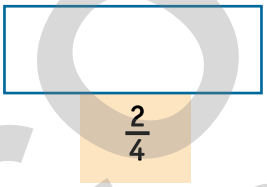
b  _____

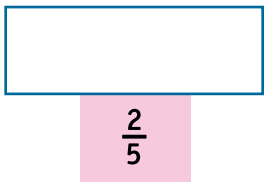
c  _____

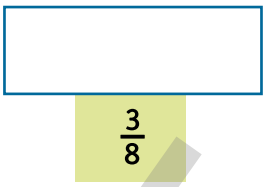
2 Divide, then colour the fraction.

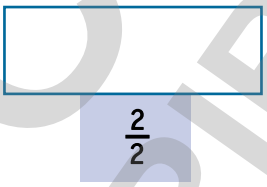
a 
$\frac{1}{10}$

b 
$\frac{1}{5}$

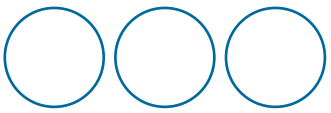
c 
$\frac{2}{4}$

d 
$\frac{2}{5}$

e 
$\frac{3}{8}$

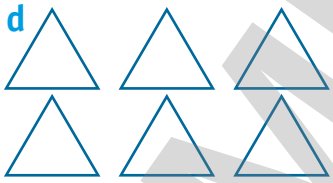
f 
$\frac{2}{2}$

3 Divide, then colour the fraction.

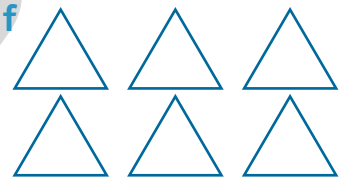
a 
$1\frac{1}{4}$

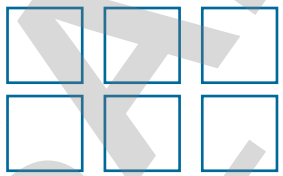
b 
$2\frac{1}{4}$

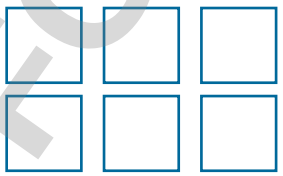
c 
$1\frac{3}{4}$

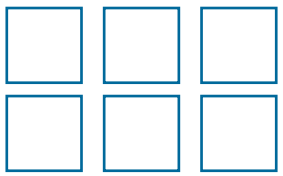
d 
$3\frac{1}{2}$

e 
$1\frac{1}{2}$

f 
$4\frac{1}{2}$

g 
$5\frac{3}{4}$

h 
$3\frac{2}{4}$

i 
$4\frac{1}{4}$

4 Write the mixed numbers from question 3 as improper fractions.

a $\frac{\square}{\square}$ b $\frac{\square}{\square}$ c $\frac{\square}{\square}$ d $\frac{\square}{\square}$ e $\frac{\square}{\square}$ f $\frac{\square}{\square}$ g $\frac{\square}{\square}$ h $\frac{\square}{\square}$ i $\frac{\square}{\square}$

$\frac{2}{3}$ ← **numerator**

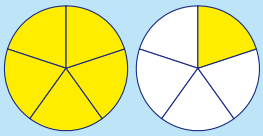
← **denominator**

The **denominator** tells us how many parts altogether.

The **numerator** tells us how many parts we have.

Mixed number

A whole number with a fraction.



This shows 1 whole and 1 fifth.

$1\frac{1}{5}$

Improper fraction

The wholes are added to the numerator.

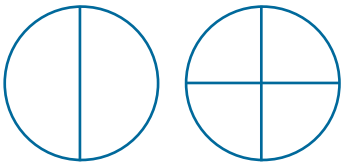
$\frac{5}{5} + \frac{1}{5} = \frac{6}{5}$

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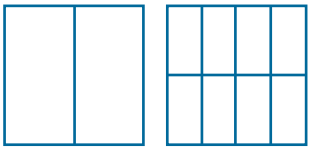
Equivalent fractions

1 Colour to show these fractions are equal.

a $\frac{1}{2} = \frac{2}{4}$



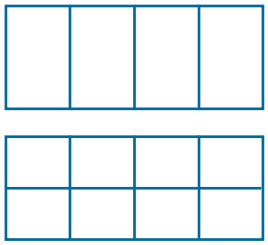
b $\frac{1}{2} = \frac{4}{8}$



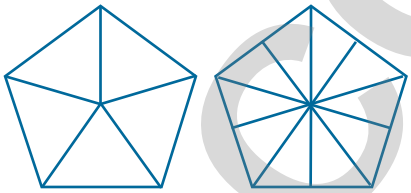
Some fractions have different names but are the same size.



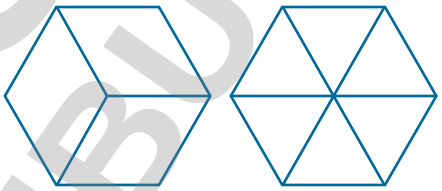
c $\frac{3}{4} = \frac{6}{8}$



d $\frac{4}{5} = \frac{8}{10}$

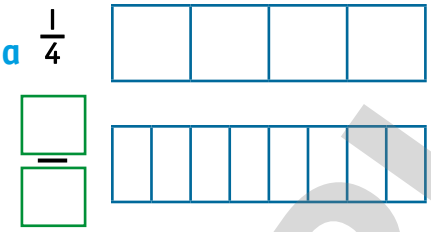


e $\frac{2}{3} = \frac{4}{6}$

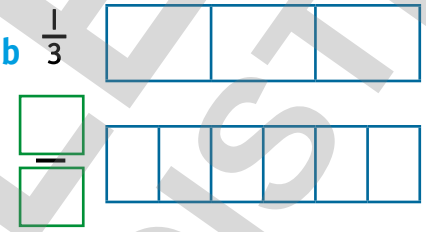


2 Colour the fraction. Colour and write an equivalent fraction below.

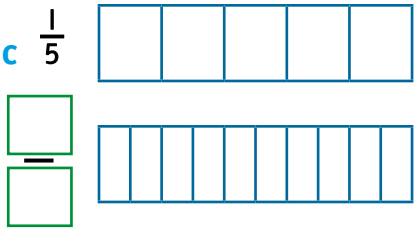
a $\frac{1}{4}$



b $\frac{1}{3}$



c $\frac{1}{5}$

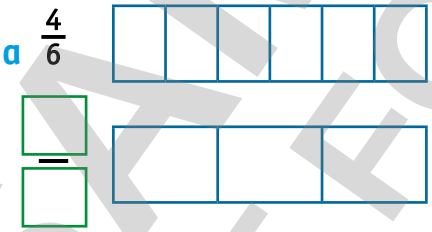


d Look at the numerators and denominators. Complete this statement:

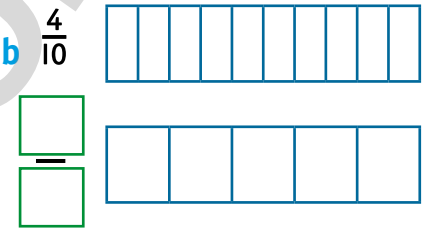
Double the denominator, _____ the numerator.

3 Colour the fraction. Colour and write an equivalent fraction below.

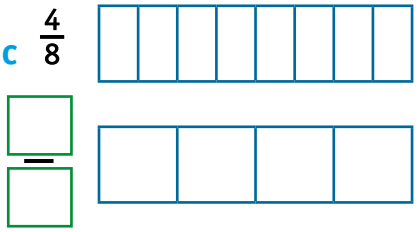
a $\frac{4}{6}$



b $\frac{4}{10}$



c $\frac{4}{8}$



d Look at the numerators and denominators. Complete this statement:

Halve the denominator, _____ the numerator.

Challenge! Write as many fractions as you can that are equivalent to a half.

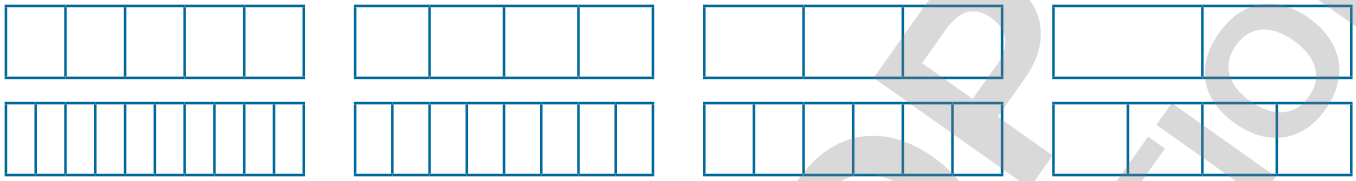
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Compare with diagrams

TERM 1
Week 4

1 Colour the fractions to compare using <, > or =.

a $\frac{1}{5}$ ☐ $\frac{3}{10}$ **b** $\frac{3}{4}$ ☐ $\frac{6}{8}$ **c** $\frac{2}{3}$ ☐ $\frac{3}{6}$ **d** $\frac{1}{2}$ ☐ $\frac{3}{4}$

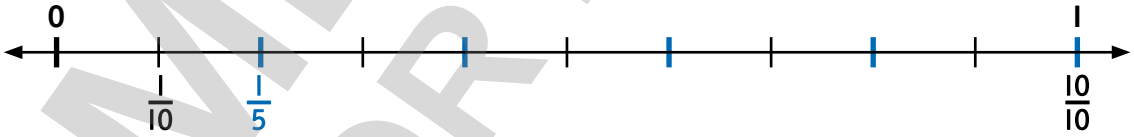


2 Draw fraction diagrams to compare using <, > or =.

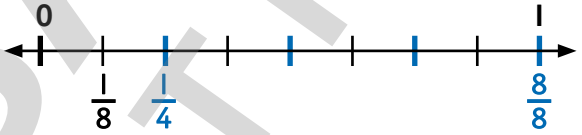
a $\frac{2}{4}$ ☐ $\frac{4}{8}$ **b** $\frac{3}{5}$ ☐ $\frac{7}{10}$ **c** $\frac{1}{2}$ ☐ $\frac{3}{8}$ **d** $\frac{1}{3}$ ☐ $\frac{3}{6}$

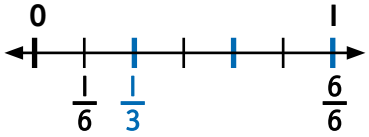
3 Plot the fractions on the number lines to compare using <, > or =.

a $\frac{2}{5}$ ☐ $\frac{4}{10}$ **b** $\frac{1}{2}$ ☐ $\frac{3}{5}$ **c** $\frac{1}{2}$ ☐ $\frac{6}{10}$



d $\frac{3}{4}$ ☐ $\frac{5}{8}$ **e** $\frac{1}{2}$ ☐ $\frac{2}{4}$ **f** $\frac{2}{3}$ ☐ $\frac{5}{6}$ **g** $\frac{1}{2}$ ☐ $\frac{4}{6}$





Mastery Checklist

I can:
- ☐ identify and represent fractions, mixed numbers and improper fractions
- ☐ identify equivalent fractions using diagrams
- ☐ compare fractions using diagrams and number lines

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Fractions



1 Five children compare how much of their chocolate bar they have left.

Johnno: $\frac{5}{8}$ Ari: $\frac{4}{5}$ Lily: $\frac{1}{2}$ Noah: $\frac{7}{10}$ Kaia: $\frac{3}{4}$

Noah says he has the most left. Is he correct? _____

Colour the fractions.

Who has the most chocolate left? _____

Who has the least? _____

2 Kauri, Ana and Oliver each have some of a set of collector cards.

Kauri has $\frac{1}{2}$, Ana has $\frac{2}{3}$, and Oliver has $\frac{5}{6}$ of a set.

Can someone give Kauri some cards so they all have the same amount? Hint: use sixths.

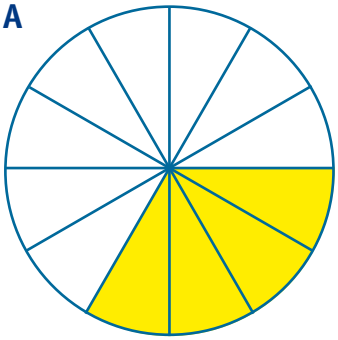
How many cards could there be in the whole pack?

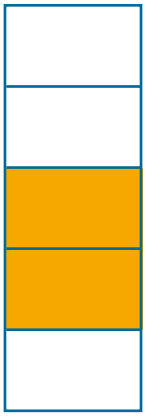
I can solve problems by:

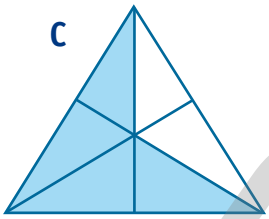
☐ understanding fractions ☐ drawing diagrams

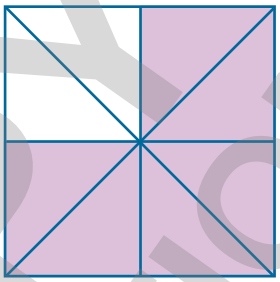
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Equivalent fractions

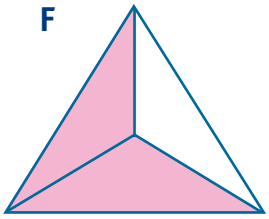
A 

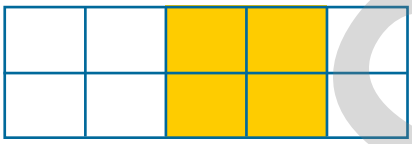
B 

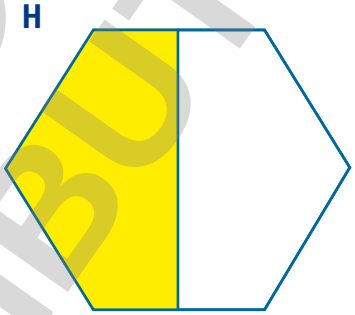
C 

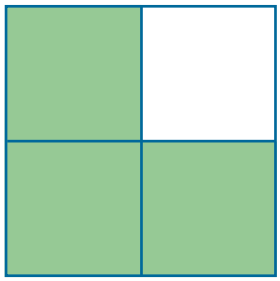
D 

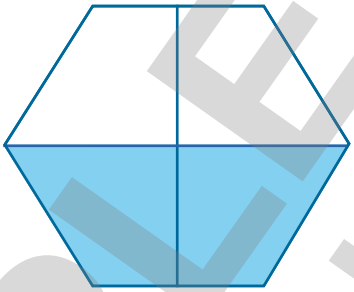
E 

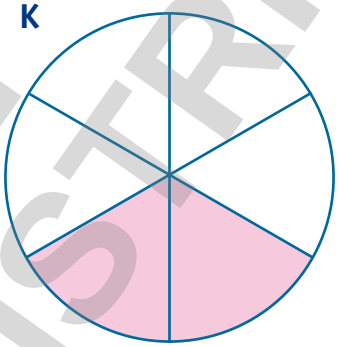
F 

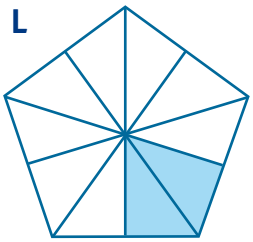
G 

H 

I 

J 

K 

L 

1 What fraction is coloured?

A _____ B _____ C _____ D _____ E _____ F _____

G _____ H _____ I _____ J _____ K _____ L _____

2 Name fractions that are the same size.

a A =_____ b B =_____ c C =_____ d D =_____ e E =_____ f H =_____

3 Name the equivalent fractions.

a $\frac{4}{12}$ =_____ b _____ c _____ d _____ e _____ f _____

4 a Look carefully at the equivalent fractions.

b For each pair of equivalent fractions, what pattern can you see?

☐ The numerator and denominator are both multiplied, or divided, by the same number.

☐ Only the numerator changes.

☐ Only the denominator changes.

5 Write four fractions that are equivalent to $\frac{1}{2}$. _____ _____ _____ _____

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Making equivalent fractions

1 Make equivalent fractions for each diagram on page 22 by multiplying the numerator and the denominator by 4.

a $\frac{4}{12} = \frac{4 \times 4}{12 \times 4} = \frac{16}{48}$	**b** $\frac{2}{5} = \frac{2 \times 4}{5 \times 4} =$	
c	**d**	
e	**f**	
g	**h**	**i**
j	**k**	**l**

Remember $\frac{2}{5}$ ← numerator ← denominator

To make equivalent fractions

- **multiply the numerator and the denominator by the same number.**

$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$

OR

- **divide the numerator and the denominator by the same number.**

$\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

2 Divide to make an equivalent fraction.

a $\frac{5}{20} = \frac{5 \div 5}{20 \div 5}$	**b** $\frac{6}{30} =$	**c** $\frac{9}{12} =$
d $\frac{15}{40} =$	**e** $\frac{8}{28} =$	**f** $\frac{20}{90} =$

3 Circle the equivalent fractions.

a $\frac{2}{3}$, $\frac{3}{6}$, $\frac{4}{6}$ **b** $\frac{6}{12}$, $\frac{5}{8}$, $\frac{1}{2}$ **c** $\frac{2}{5}$, $\frac{6}{15}$, $\frac{4}{12}$ **d** $\frac{1}{4}$, $\frac{1}{8}$, $\frac{2}{16}$

e $\frac{3}{9}$, $\frac{1}{3}$, $\frac{6}{12}$ **f** $\frac{7}{8}$, $\frac{10}{12}$, $\frac{5}{6}$ **g** $\frac{10}{20}$, $\frac{6}{10}$, $\frac{3}{5}$ **h** $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$

4 Write the equivalent fractions.

a $\frac{15}{20} = \frac{3}{\square}$ **b** $\frac{24}{32} = \frac{\square}{4}$ **c** $\frac{27}{30} = \frac{\square}{10}$ **d** $\frac{28}{36} = \frac{7}{\square}$

e $\frac{21}{56} = \frac{3}{\square}$ **f** $\frac{90}{100} = \frac{\square}{10}$ **g** $\frac{16}{18} = \frac{8}{\square}$ **h** $\frac{20}{50} = \frac{10}{\square} = \frac{\square}{5}$

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Add and subtract fractions

TERM 1
Week 5

1 When the denominators are the same, add the numerators.

a $\frac{1}{6} + \frac{1}{6} =$ _____

b $\frac{1}{10} + \frac{3}{10} =$ _____

c $\frac{5}{12} + \frac{1}{12} =$ _____

d $\frac{7}{12} + \frac{3}{12} =$ _____

e $\frac{1}{8} + \frac{3}{8} =$ _____

f $\frac{1}{8} + \frac{5}{8} =$ _____

g $\frac{1}{4} + \frac{1}{4} =$ _____

h $\frac{7}{8} + \frac{1}{8} =$ _____

i $\frac{2}{12} + \frac{4}{12} =$ _____

j $\frac{3}{6} + \frac{1}{6} =$ _____

k $\frac{1}{8} + \frac{1}{8} =$ _____

l $\frac{3}{10} + \frac{2}{10} =$ _____

m $\frac{7}{10} + \frac{1}{10} =$ _____

n $\frac{1}{4} + \frac{3}{4} =$ _____

o $\frac{2}{9} + \frac{4}{9} =$ _____

2 Use the diagram to add the fractions. Write the answer as an improper fraction. Then write the answer as a mixed number.

a $\frac{4}{5} + \frac{3}{5} = \frac{7}{5}$  $1\frac{2}{5}$

b $\frac{3}{4} + \frac{3}{4} =$  _____

c $\frac{5}{6} + \frac{5}{6} =$  _____

d $\frac{5}{8} + \frac{5}{8} =$  _____

e $\frac{7}{10} + \frac{7}{10} =$  _____

3 The denominators are the same so subtract the numerators.

a $\frac{3}{4} - \frac{1}{4} =$ _____

b $\frac{5}{6} - \frac{1}{6} =$ _____

c $\frac{7}{8} - \frac{3}{8} =$ _____

d $\frac{9}{10} - \frac{3}{10} =$ _____

e $\frac{5}{8} - \frac{1}{8} =$ _____

f $\frac{7}{10} - \frac{3}{10} =$ _____

4 **a** $1\frac{1}{4} - \frac{3}{4} =$  $\frac{2}{4} = \frac{1}{2}$

b $1\frac{2}{5} - \frac{3}{5} =$  _____

c $1\frac{1}{3} - \frac{2}{3} =$  _____

d $1\frac{1}{5} - \frac{4}{5} =$  _____

e $1\frac{3}{10} - \frac{7}{10} =$  _____

5 There were two chocolates on the table. Gran ate three fifths of one and I ate three fifths of the other. How much chocolate was left on the table?

  _____

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Related fractions

1 Make equivalent fractions with the same denominator. Then add the numerators.

a $\frac{1}{2} + \frac{1}{4} =$ _____ = _____

b $\frac{3}{6} + \frac{2}{3} =$ _____ = _____

c $\frac{1}{4} + \frac{5}{8} =$ _____ = _____

d $\frac{2}{5} + \frac{3}{10} =$ _____ = _____

e $\frac{1}{2} + \frac{1}{5} =$ _____ = _____

f $\frac{1}{4} + \frac{1}{3} =$ _____ = _____

g $\frac{1}{2} + \frac{1}{3} =$ _____ = _____

Remember $\frac{2}{5}$ ← numerator, ← denominator

To make equivalent fractions

- **multiply the numerator and the denominator by the same number.**

$$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

OR

- **divide the numerator and the denominator by the same number.**

$$\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$

2 Make equivalent fractions. Subtract the numerators.

a $\frac{1}{2} - \frac{3}{10} =$ _____ = _____

b $\frac{2}{3} - \frac{3}{6} =$ _____ = _____

c $\frac{3}{4} - \frac{3}{8} =$ _____ = _____

d $\frac{7}{10} - \frac{2}{5} =$ _____ = _____

e $\frac{1}{2} - \frac{1}{5} =$ _____ = _____

f $\frac{1}{3} - \frac{1}{4} =$ _____ = _____

3 Make equivalent fractions to add and subtract.

a $\frac{3}{5} + \frac{7}{10} =$ _____ = _____

b $\frac{5}{3} + \frac{4}{6} =$ _____ = _____

c $\frac{5}{2} + \frac{7}{8} =$ _____ = _____

d $\frac{12}{8} + \frac{5}{4} =$ _____ = _____

e $\frac{12}{10} - \frac{4}{5} =$ _____ = _____

f $\frac{8}{6} - \frac{2}{3} =$ _____ = _____

4 Write an equation to find the answer.

a I had one and a half apples. My brother ate three quarters of an apple.

How much apple is left? _____

b Mum gave me two thirds of an apple pie, Dad gave me half a blueberry pie and Nana gave me a quarter of a custard pie. How much pie do I have altogether?

_____

Mastery Checklist I can:

- ☐ identify equivalent fractions
- ☐ make equivalent fractions
- ☐ add and subtract fractions with the same or related denominators

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Checkpoint 1

1 Which number is smallest?

Shade one bubble.

458,793 ○ 8 hundred thousand ○ one million ○ 99,999 ○

2 What is the place value of the underlined number?

$168.5\underline{2}$

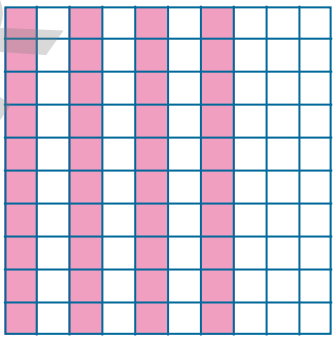
hundreds ○ tens ○ tenths ○ hundredths ○

3 What is the answer?

$15 \div 100 =$

1·5 ○ 0·015 ○ 0·15 ○ 1·05 ○

4 How many tenths are coloured?



2 ○ 4 ○ 40 ○ 10 ○

Write your answer in the box.

5 Alex has 0·4, or four ☐ of his money in the bank.



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Checkpoint 1

6 What is the price rounded to the nearest 10 cents?



• $16.38

Shade one bubble.

$16.00 ○ $16.40 ○ $16.35 ○ $16.30 ○

7

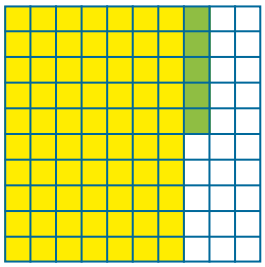
$$\frac{1}{2} + \frac{2}{3} = ?$$

$\frac{3}{6}$ ○ $\frac{7}{6}$ ○ $\frac{3}{5}$ ○ $\frac{4}{5}$ ○

8 Which number has the largest hundreds digit?

7,954,328 ○ **3,429,845** ○ **1,467,502** ○ **8,047,638** ○

9 Which of the following shows the correct tenths + hundredths and the decimal?



$\frac{7}{10} + \frac{5}{100}$, 0·75 ○ $\frac{7}{10} + \frac{2}{100}$, 0·72 ○ $\frac{3}{10} + \frac{8}{100}$, 0·38 ○ $\frac{3}{10} + \frac{2}{100}$, 0·32 ○

10 Which is NOT a correct answer?

$$\frac{4}{5} - \frac{4}{10} = ?$$

$\frac{2}{5}$ ○ $\frac{4}{10}$ ○ $\frac{40}{100}$ ○ $\frac{25}{50}$ ○

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Odds and evens (+ –)

Answer the sums and complete the rules.

1 **a** 9 + 9 = _____ **b** 11 + 15 = _____
c 13 + 7 = _____ **d** 121 + 1 = _____
e 5 + 217 = _____ **f** 313 + 25 = _____

Rule
odd + odd
= _____



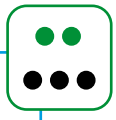
2 **a** 4 + 8 = _____ **b** 10 + 12 = _____
c 28 + 14 = _____ **d** 18 + 118 = _____
e 120 + 326 = _____ **f** 622 + 442 = _____

Rule
even + even
= _____



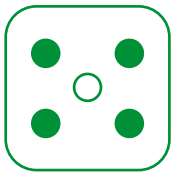
3 **a** 11 + 6 = _____ **b** 14 + 3 = _____
c 124 + 9 = _____ **d** 31 + 16 = _____
e 232 + 15 = _____ **f** 315 + 114 = _____

Rule
odd + even = _____
even + odd = _____



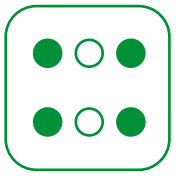
4 **a** 29 – 3 = _____ **b** 15 – 7 = _____
c 125 – 7 = _____ **d** 125 – 11 = _____
e 231 – 15 = _____ **f** 315 – 113 = _____

Rule
odd – odd
= _____



5 **a** 16 – 10 = _____ **b** 22 – 6 = _____
c 128 – 18 = _____ **d** 336 – 12 = _____
e 326 – 120 = _____ **f** 622 – 442 = _____

Rule
even – even
= _____



6 **a** 70 – 15 = _____ **b** 69 – 18 = _____
c 84 – 23 = _____ **d** 37 – 14 = _____
e 246 – 217 = _____ **f** 444 – 13 = _____

Rule
odd – even = _____
even – odd = _____

7 Use the rules to check the answers. Tick if they follow the rule.

a 765 + 1,432 = 2,198 **b** 2,040 + 738 = 2,778
c 7,841 – 965 = 6,876 **d** 765 – 548 = 216
e 9,205 + 333 = 9,538 **f** 8,960 – 4,826 = 4,133



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Number Operations: Adding and subtracting increasingly large whole numbers; Addition and subtraction can be carried out mentally, using known facts;
Algebra Equations and relationships: Checking the truth of number sentences

Equivalent equations

We can make equivalent number sentences to help solve problems.



e.g. Henri keeps 8 hens and 2 roosters. His mother has the same number of chickens, but she has 6 hens. How many roosters does she have?

Working: 8 + 2 is the same as 6 + **?**

8 + 2 is 10 which is the same as 6 + 4, so Henri's mother has 4 roosters.

1 Make three number sentences which have the same total as:

a 4 + 7 _____ _____ _____

b 5 + 8 _____ _____ _____

c 11 + 6 _____ _____ _____

d 16 + 9 _____ _____ _____

e 18 + 6 _____ _____ _____

2 Match the number sentences and write them to show equivalence.

e.g. 17 + 2 ⟶ 15 + 4 17 + 2 = 15 + 4

a	17 + 9	12 + 13	_____
b	23 + 6	18 + 8	_____
c	15 + 10	26 + 5	_____
d	18 + 7	16 + 13	_____
e	22 + 5	19 + 6	_____
f	19 + 12	16 + 11	_____





3 Show how to use equivalent number sentences to answer the questions.

a I saved $15 one week and then another $20 the next week.
Jenni saved $13 the first week and wants to equal my savings in the next week.
How much more does she have to save?

_____ = _____

b There are 28 boys and 12 girls in one bus on the excursion.
16 girls get into the other bus and 24 boys follow.
Do the buses have equal loads? _____



_____ = _____

Make a table

Annie has ten pets – some dogs and some cats.
Make a table to show the possible numbers of dogs and cats she could have.

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Addition and subtraction

Use subtraction to check addition

$$\begin{array}{r} 293 \\ +\ 578 \\ \hline 871 \end{array} \qquad \begin{array}{r} 871 \\ -\ 293 \\ \hline 578 \end{array}$$

1 Use the pattern to complete each set of facts.

a 3 + 8 = 11
30 + 80 = ____
300 + 800 = ____

b 6 + 9 = ____
60 + 90 = ____
600 + 900 = ____

c 5 + 7 = ____
50 + 70 = ____
____ + ____ = ____

d 4 + 8 = ____
____ + ____ = ____
____ + ____ = ____

e 7 − 4 = ____
70 − 40 = ____
700 − 400 = ____

f 9 − 5 = ____
____ − ____ = ____
____ − ____ = ____

g 8 − 6 = ____
____ − ____ = ____
____ − ____ = ____

h 8 − 1 = ____
____ − ____ = ____
____ − ____ = ____

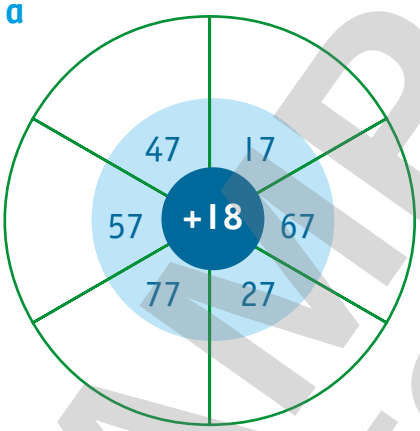
2 From one fact write three more.

a 13 + 9 = 22
9 + _____ = 22
22 − _____ = 13
22 − _____ = 9

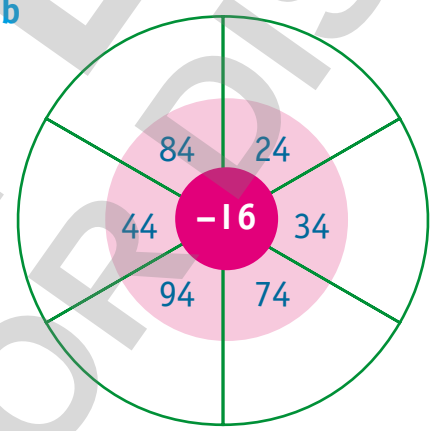
b 16 + 7 = _____
_____ + _____ = _____
_____ − _____ = _____
_____ − _____ = _____

c 28 − 9 = _____
_____ − _____ = _____
_____ + _____ = _____
_____ + _____ = _____

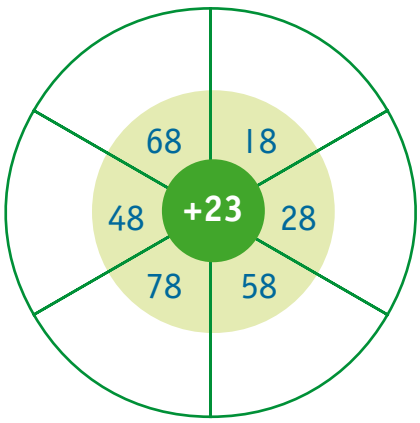
3 **a**



b



c



4 Add, then subtract to check your answers.

a
$$\begin{array}{r} 372 \\ +\ 211 \\ \hline \\ \end{array} \qquad \begin{array}{r} \\ -\ \\ \hline \\ \end{array}$$

b
$$\begin{array}{r} 569 \\ +\ 358 \\ \hline \\ \end{array} \qquad \begin{array}{r} \\ -\ \\ \hline \\ \end{array}$$

c
$$\begin{array}{r} 779 \\ +\ 355 \\ \hline \\ \end{array} \qquad \begin{array}{r} \\ -\ \\ \hline \\ \end{array}$$

d
$$\begin{array}{r} 699 \\ +\ 386 \\ \hline \\ \end{array} \qquad \begin{array}{r} \\ -\ \\ \hline \\ \end{array}$$

Always check your answers.

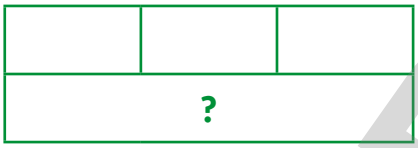
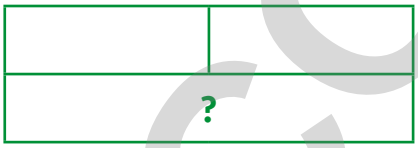
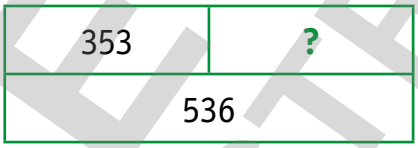
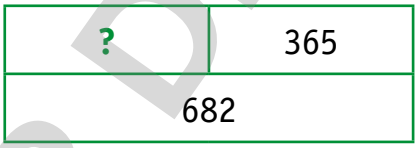
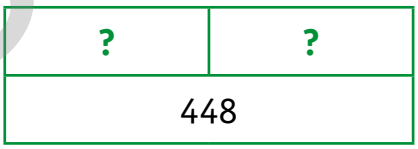


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Number Operations: Adding and subtracting increasingly large whole numbers; Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods

Bar model for addition and subtraction

TERM 1
Week 6

Problem	Bar model	Equation
1 Waru and his cousins carved hei-tiki. Waru carved 35, Yarran carved 29 and Coen carved 39. How many did they carve altogether?	 ? = _____	_____ + _____ + _____ = _____
2 Ash counted 187 lizards in the rock garden and 168 more beside the creek. How many lizards altogether?	 ? = _____	_____ + _____ = _____
3 Aaina counted 353 fruit on Saturday, and then on Sunday she counted some more. If Aaina counted 536 fruit altogether, how many did she count on Sunday?	 ? = _____	353 + _____ = 536 536 − 353 = _____
4 Nullah and Bindi collected 682 wattle seeds. If Bindi collected 365, how many did Nullah collect?	 ? = _____	_____ + _____ = _____ _____ − _____ = _____
5 Jiemba and Birrani were at the beach counting crabs. They each counted the same number and got 448 in total. How many did they each count?	 ? = _____ ? = _____	_____ + _____ = 448

Mastery Checklist

I can:
- ☐ check answers using the odd/even rules for addition and subtraction
- ☐ write equivalent equations and use them to solve problems
- ☐ use addition and subtraction as inverse operations
- ☐ add and subtract 1, 2 and 3-digit numbers

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Think of a number

1 Find the pattern in this procedure so that you can make up a similar puzzle.
Try three different numbers.

Write down a number <30
Add 15
Subtract 8
Add another 9
Take away 19 this time
Add 6
Subtract 3
That's your number!

a	b	c
Your number is	Your number is	Your number is

d What happens to make this answer? _____

_____

CARD TRICK

2 Try this.

Ask a partner to choose a number card from a deck of cards. Instruct them to:
Add 12 to the value of the card
Subtract 8
Add a further 10
Take 16 from the total
Add 5
Subtract 4
Ask what their result is. Secretly add 1 and tell them the number of their card!

Work it out here

a Work out how you could tell their card was 1 more than their answer.

_____

b Make up a similar puzzle of your own, using addition and subtraction.

I can solve problems by:
☐ using different operations ☐ finding patterns

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Number Operations: Adding and subtracting increasingly large whole numbers; Addition and subtraction can be carried out mentally, using known facts

Addition

Headphones



382

Keyboard



128

VR Glasses



467

Console



175

Monitor



319



Controller

246

A games shop owner counted all the items in the shop.

1 Which item was there: a most of? _____ b least of? _____

2 Group these items.

a controllers + consoles = _____ + _____ = _____

b monitors + keyboards = _____ + _____ = _____

c VR glasses + headphones = _____ + _____ = _____

3 Set these out as an algorithm.

a consoles + monitors

b headphones + keyboards

c controllers + VR glasses

a	H	T	O

b	H	T	O

c	H	T	O

4 Which two items add to about:

a 500? _____

b 700? _____

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Addition with trading

1 Calculate the answer. Don't forget to trade.

a
$$\begin{array}{r} \square \\ 37 \\ +\ 27 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} \square \\ 24 \\ +\ 18 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} \square \\ 38 \\ +\ 49 \\ \hline \\ \hline \end{array}$$

Tens	Ones
+1	
2	7
+ 2	5
5	2

The **ones** add to 12.
Keep the **ones digit (2)**.
Trade the **10 up** a column as **+1**.

2 Write the algorithm and find the answer.

a 75 + 15 =

+	

b 44 + 37 =

+	

c 68 + 22 =

+	

d 63 + 19 =

+	

3 Complete these additions involving regrouping.

a
$$\begin{array}{r} \boxed{1} \\ 274 \\ +\ 583 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} \square \\ 752 \\ +\ 186 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} \square \\ 826 \\ +\ 159 \\ \hline \\ \hline \end{array}$$

d
$$\begin{array}{r} \square \\ 674 \\ +\ 218 \\ \hline \\ \hline \end{array}$$

4 Rewrite each sum vertically. Calculate each sum. The first one has been done for you.

a 4,672 + 579

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 4672 \\ +\ 579 \\ \hline 5251 \end{array}$$

b 6,731 + 5,807

$$\begin{array}{r} \\ \\ +\ \\ \hline \\ \hline \end{array}$$

c 6,925 + 8,176

$$\begin{array}{r} \\ \\ +\ \\ \hline \\ \hline \end{array}$$

d 7,925 + 682

$$\begin{array}{r} \\ \\ +\ \\ \hline \\ \hline \end{array}$$

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Subtraction with trading

To trade down a ten
56 = 50 + 6
= 40 + 16

1 Trade down 1 ten.

a 46 = 40 + 6
= 30 + ____

b 72 = 70 + 2
= 60 + ____

c 85 = 80 + 5
= ____ + ____

d 27 = 20 + ____
= ____ + ____

e 51 = 50 + ____
= ____ + ____

f 34 = 30 + ____
= ____ + ____

g 48 = 40 + ____
= ____ + ____

h 93 = 90 + ____
= ____ + ____

i 61 = 60 + ____
= ____ + ____

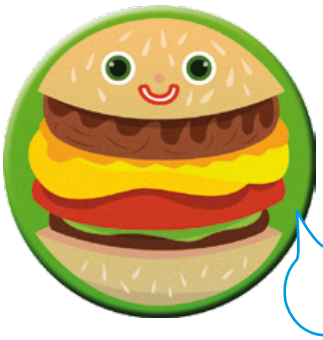
j 36 = 30 + ____
= ____ + ____

k 69 = 60 + ____
= ____ + ____

l 87 = ____ + ____
= ____ + ____

m 45 = ____ + ____
= ____ + ____

n 78 = ____ + ____
= ____ + ____



We use trading tens for subtraction.

2 **a**

Tens	Ones
2	12
~~3~~	~~2~~
− 1	5

b

Tens	Ones
4	15
~~5~~	~~5~~
− 2	8

c

Tens	Ones
5	13
~~6~~	~~3~~
− 4	9

Tens	Ones
5	12
~~6~~	~~2~~
− 2	7
3	5

I can't take 7 from 2, so I traded down a ten.

d

Tens	Ones
6	14
~~7~~	~~4~~
− 5	5

e

Tens	Ones
3	17
~~4~~	~~7~~
− 1	8

f

Tens	Ones
7	18
~~8~~	~~8~~
− 3	9

g

Tens	Ones
6	7
− 4	9

h

Tens	Ones
3	6
− 1	8

i

Tens	Ones
8	5
− 5	6

j

Tens	Ones
5	3
− 2	8

k

Tens	Ones
7	4
− 4	7

l

Tens	Ones
4	8
− 1	9

m

Tens	Ones
9	2
− 3	9

n

Tens	Ones
7	0
− 2	6

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More subtraction

TERM 1
Week 7

1 3 15

a ~~2 4 5~~
− 1 2 8

b 3 7 2
− 1 8 4

c 5 2 3
− 2 6 7

d 4 5 6
− 1 8 9

e 6 1 2
− 3 4 5

f 3 7 8
− 2 4 6

g 5 6 4
− 2 7 8

h 7 8 9
− 2 3 4

i 6 5 2
− 1 8 7

j 8 4 1
− 3 5 6

2

A



67 passengers

B

49 passengers



C



74 passengers

D

98 passengers



E



55 passengers

What is the difference in number of passengers between train **D** and each other train?

A 9 8
− 6 7

B 9 8
−

C

E

3 Which two trains have a difference of:

a 19? _____ **b** 18? _____ **c** 12? _____ **d** 25? _____

4 Which two trains have:

a the greatest difference? _____ **b** the least difference? _____

5 Complete these subtraction squares. Work mentally.

a

−		
62	14	
28	12	

b

−		
73	35	
25	19	

c

−		
58	23	
19	15	

d

−		
90	35	
59	24	

6 **a** There are 245 students in a music school. 158 students take guitar lessons. The rest take piano lessons.

How many are learning piano?

_____

b There are 387 pencils in total. 264 are sharpened.

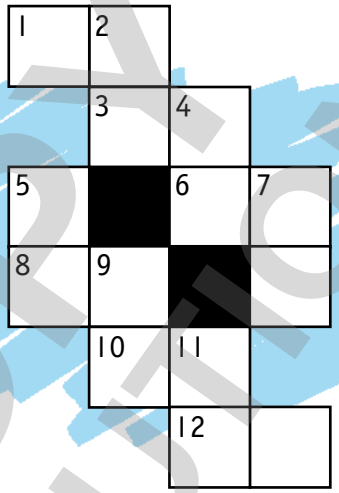
How many need sharpening?

_____

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Algorithm puzzles

Work out the answers to complete the crossnumber puzzle.



1 38 − 27 = ____

2 56 − 39 = ____

3 92 − 17 = ____

4 73 − 15 = ____

5 61 − 38 = ____

6 93 − 9 = ____

7 85 − 36 = ____

8 64 − 28 = ____

9 91 − 28 = ____

10 72 − 37 = ____

11 78 − 24 = ____

12 84 − 38 = ____

13 **a** 437 − 245 = ____

b 892 − 528 = ____

c 182 − 106 = ____

d 795 − 427 = ____

e 659 − 378 = ____

14 Write in the missing digits.

a
$$\begin{array}{r} 6\square 3 \\ +\ \square 64 \\ \hline 138\square \end{array}$$

b
$$\begin{array}{r} {\scriptstyle 1}\ {\scriptstyle 1} \\ 58\square \\ +\ 3\square 5 \\ \hline \square 09 \end{array}$$

c
$$\begin{array}{r} {\scriptstyle 1}\ \ {\scriptstyle 1} \\ \square 83 \\ +\ 5\square 9 \\ \hline 123\square \end{array}$$

d
$$\begin{array}{r} {\scriptstyle 1} \\ 6\square 7 \\ +\ 85\square \\ \hline \square\square 39 \end{array}$$

e
$$\begin{array}{r} {\scriptstyle 1}\ {\scriptstyle 1} \\ 39\square \\ +\ \square 75 \\ \hline 10\square 0 \end{array}$$

f
$$\begin{array}{r} {\scriptstyle 1}\ {\scriptstyle 1} \\ 1\square 9 \\ +\ 85\square \\ \hline \square\square 20 \end{array}$$

g
$$\begin{array}{r} {\scriptstyle 1} \\ \square 37 \\ +\ 28\square \\ \hline 10\square 9 \end{array}$$

h
$$\begin{array}{r} {\scriptstyle 1}\ {\scriptstyle 1} \\ 67\square \\ +\ \square 48 \\ \hline 9\square 0 \end{array}$$

Mastery Checklist

I can: ☐ add two- and three-digit numbers with trading in written algorithms
☐ subtract two-digit and three-digit numbers with regrouping in written algorithms

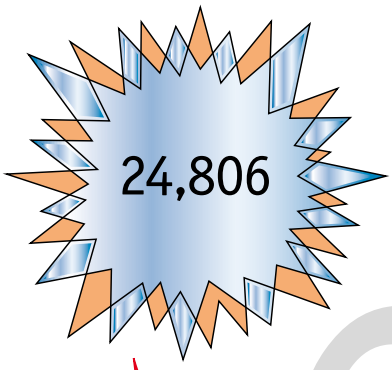
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More addition

A



B



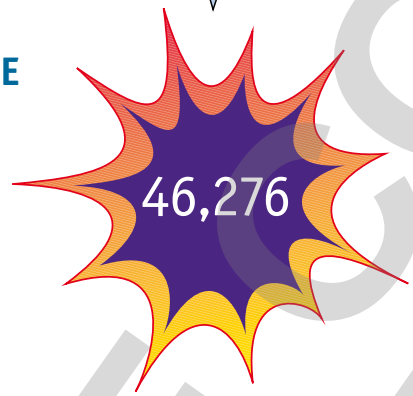
C



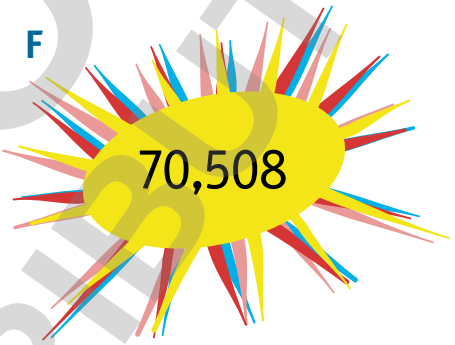
D



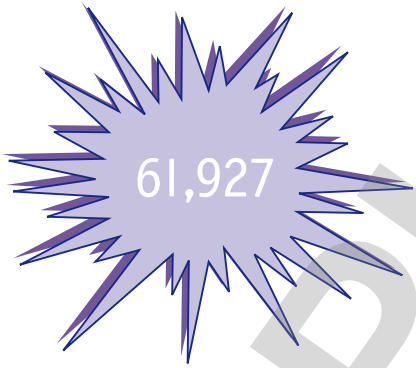
E



F



G



H



I



1 Add.

a B + E + I = _____

b G + F + E = _____

c A + C = _____

d H + D = _____

e A + B + C = _____

f D + E + G = _____

g F + C = _____

h I + H + B = _____

i F + I + B + A = _____

j C + D + E + G = _____

Working

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More subtraction

1 Write an algorithm to take every number on the previous page away from 99,999.

A

–

B

–

C

–

D

–

E

–

F

–

G

–

H

–

I

–

2 Use all the digits from 0 to 9 to:

0	1	2	3	4	5	6	7	8	9

a make two numbers to add for the highest possible total.

+

b make two numbers to subtract for the smallest difference possible.

–

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Addition of money

TERM 1
Week 8

LUKE'S LAVISH LUNCHES



Sashimi $7.50



Indian Tray $9.50



Taco $8.60



Hamburger $4.80



Grilled sandwich $5.30



Pizza slice $6.20

Every work day three friends go to Luke's Lavish Lunches for lunch.
Each day they choose a different combination of dishes.

1 Write down the dishes they might choose and the total cost for each day.

a Monday Sashimi + Sandwich + Taco = $

b Tuesday _____

c Wednesday _____

d Thursday _____

e Friday _____

2 a Estimate the cost of ordering all six dishes. _____

b Use a calculator to find the actual cost. _____

c Was the calculator useful? _____ Why? _____

_____

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Number Financial mathematics: Calculating the total cost of items costing dollars and cents; Representing currency values of mixed dollars and cents using decimal notation; Rounding money amounts to the nearest dollar

Add and subtract problems

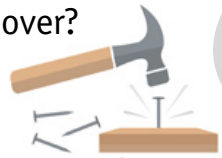
TERM 1
Week 8

Show your working.

1 Bella takes three dogs for a walk. She charges $13.50 per dog. How much change does she give from a $50 note?



2 Tim helped his mum build a deck. They bought 500 nails. They used 426 nails on the deck and bent 65 nails. How many nails were left over?



3 Maria wrote a 3-page article for the local paper. It had 2,000 words. The first page had 336 words and a photo. The second page had 852 words. How many words were on the last page?

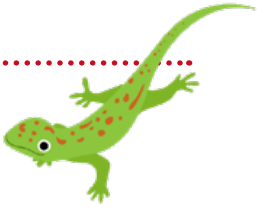


4 Alex wrote 7,483 lines of code. Later she had to add 3,275 more lines. When she reviewed her work again, she ended up taking out 2,690 lines. How many lines of code are there now?

5 Kev grew 12,800 meal worms to feed the skinks. He fed them 2,368 on Monday, 2,497 on Tuesday and 2,452 on Wednesday. How many meal worms are left for the skinks after this?

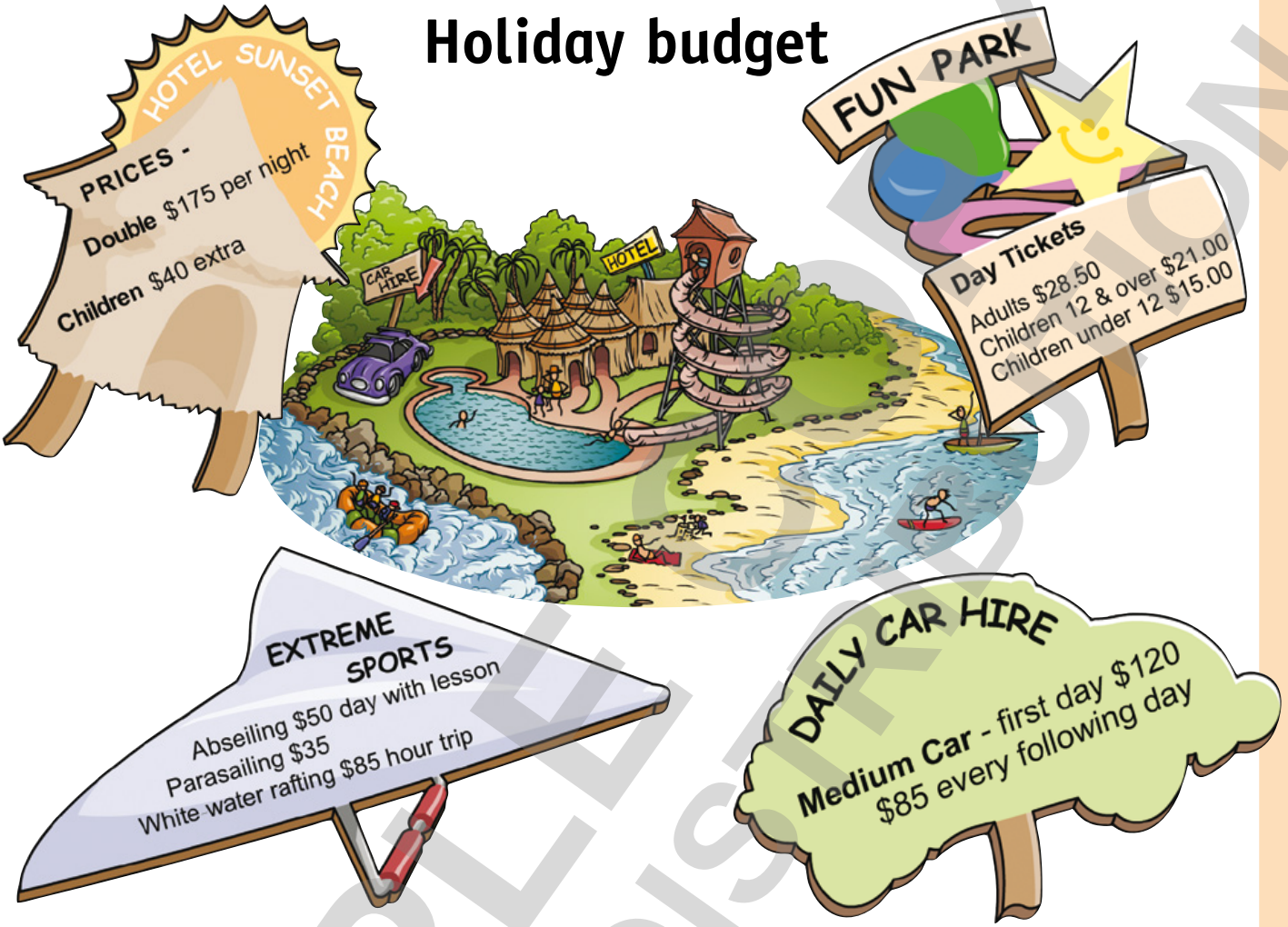
Mastery Checklist I can:

- ☐ add and subtract five-digit numbers
- ☐ add and subtract prices in dollars and cents
- ☐ solve addition and subtraction problems



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Holiday budget



Make a budget for the Floogles, a family of 2 adults and 2 children (11 and 13). Plan lots of activities and fun for them for a 5 night/4 day stay.

1 What will it cost them? All food is free.

Accommodation	Car Hire	Entertainment

2 Which item will cost the most on the holiday? _____

I can solve problems by:

☐ using different operations ☐ choosing the correct strategy

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Kilograms



One kilogram is 1,000 grams.

This can be written using a **decimal point**: 1·0 kg

whole kilograms ← part kilograms →

1 kg 200 g = 1,200 g = 1·2 kg

1 whole kilogram ↑ 200 grams ↑

1 Write the missing masses.

kg and g	g	kg
a 4 kg 300 g	4,300 g	4·3 kg
b	2,700 g	
c 5 kg 750 g		
d		2·25 kg
e	7,500 g	
f 8 kg 400 g		

2 Write the masses as decimal kilograms.

e.g. 5,500 g 5·5 kg

a 3,250 g _____ b 8,750 g _____

c 1,000 g _____ d 6,200 g _____ e 4,250 g _____

f 7,000 g _____ g 2,200 g _____ h 9,250 g _____

i 10,750 g _____ j 3,300 g _____ k 5,800 g _____

3 Write the masses in grams.

e.g. 3·25 kg 3,250 g

a 10·5 kg _____ b 4·6 kg _____

c 8·75 kg _____ d 9·1 kg _____ e 7·4 kg _____

f 2 kg _____ g 6·4 kg _____ h 9·75 kg _____

i 1·25 kg _____ j 5·73 kg _____ k 2·2 kg _____

4 Write these masses in order from smallest to largest:

3,250 g, 1·2 kg, 5 kg, 100 g, 100 kg, 6,000 g, 8·75 kg, 1 g

_____

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Grams and kilograms

kilogram kg
gram g
1,000 g = 1 kg

TERM 1
Week 9

1 Change to kilograms.

a 3,000 g _____ **b** 9,000 g _____ **c** 1,000 g _____

d 7,000 g _____ **e** 5,000 g _____ **f** 1,500 g _____ kg _____ g

g 5,200 g _____ kg _____ g **h** 8,125 g _____ kg _____ g

2 Change to grams.

a 4 kg _____ **b** 6 kg _____ **c** 2 kg _____ **d** 5 kg _____

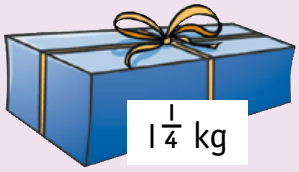
e 2 kg 600 g _____ **f** 9 kg 150 g _____

g 3 kg 475 g _____ **h** 6·5 kg _____

i 2·25 kg _____ **j** 8·75 kg _____ **k** 1·5 kg _____

3

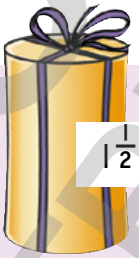
A



B



C



D



a Write the weights in grams. **A** _____ **B** _____ **C** _____ **D** _____

b Order them from lightest to heaviest. _____

4 How many more grams must be added to make $\frac{1}{2}$ kg?

a 250 g _____ **b** 405 g _____ **c** 110 g _____ **d** 338 g _____

5 Would you use grams or kilograms to weigh:

a a Māui dolphin? _____ **b** a kākāpō? _____

c an Archey's frog? _____ **d** a horse? _____

e a packet of biscuits? _____ **f** a big bag of rice? _____

g a tea bag? _____ **h** a mattress? _____

i a tea towel? _____ **j** a dishwasher? _____

6 Write the mass of each object.

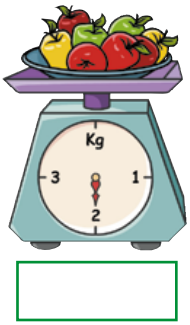
a



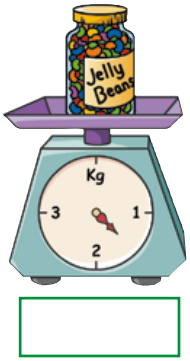
b



c



d



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Measurement Measuring: Accurately measuring mass (weight) with scales, using appropriate metric units or a combination of units; Converting metric units

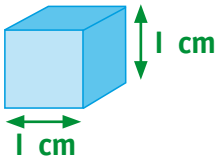
The cubic centimetre

Volume is measured in cubic units.

This cube has 1 cm sides.

This cube's volume is one cubic centimetre.

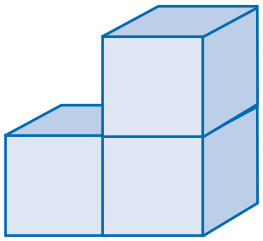
The short form of **one cubic centimetre = 1 cm^3**.



Volume
The amount of space an object takes up

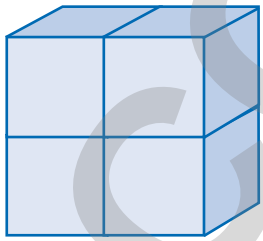
1 How many cubic centimetres in each model?

a



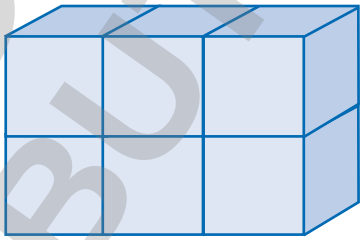
Volume = ☐ cm^3

b



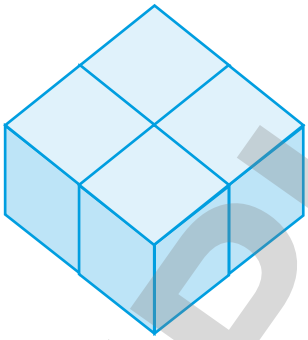
Volume = ☐ cm^3

c



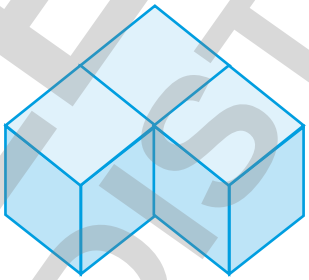
Volume = ☐ cm^3

d



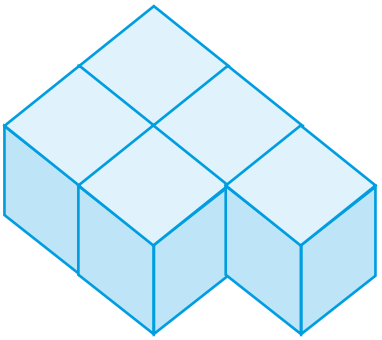
Volume = ☐ cm^3

e



Volume = ☐ cm^3

f



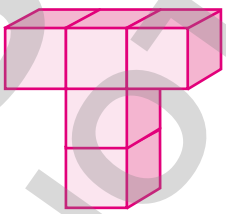
Volume = ☐ cm^3

g Which model has the largest volume? _____

h Which models have the same volume? _____

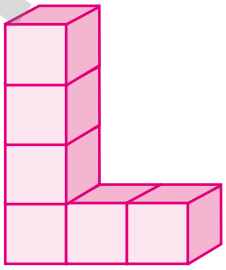
2 Find the volume of each model.

a



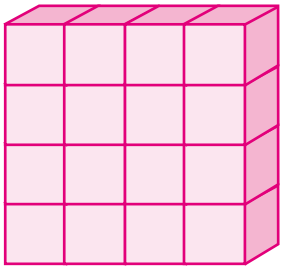
☐ cm^3

b



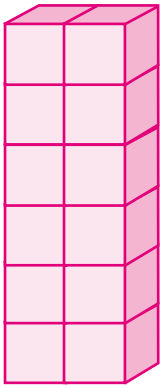
☐ cm^3

c



☐ cm^3

d

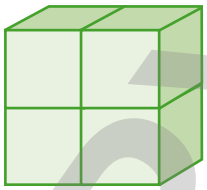


☐ cm^3

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Volume

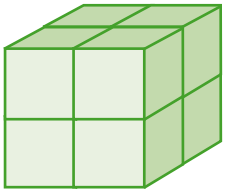
A **rectangular prism** model is built with layers of cubes.
To find the **volume** for a rectangular prism model,
work out **how many cubes are in 1 layer**.
Then **multiply by the number of layers**.



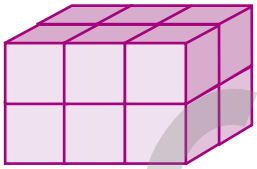
Volume
2 cubes per layer
× 2 layers
2 × 2 = 4 cubes

1 Build these models. Use centicubes to model one layer, then add more layers on top.

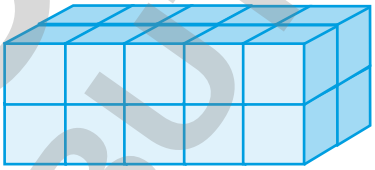
A



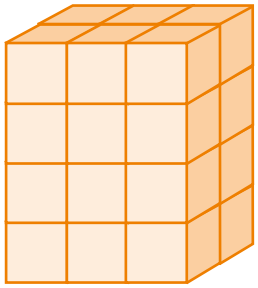
B



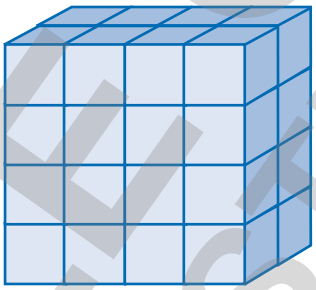
C



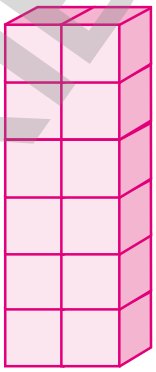
D



E



F





2 Imagine each cube above is 1 cm³. Find the volume for each model.

	Cubes in 1 layer?		Number of layers?		Volume
A		×		=	
B		×		=	
C		×		=	
D		×		=	
E		×		=	
F		×		=	

Challenge!
How many cubes in a Rubik's cube?



Mastery Checklist I can:
- ☐ convert between metric mass units
- ☐ measure volume using cubic centimetres
- ☐ weigh items using scales
- ☐ count layers of cubes to find volume

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Measurement Measuring: Measuring the volumes of rectangular prisms (cuboids) filled with centicubes by determining the number of cubes in each layer and then multiplying by the number of total layers

Measurement: Volume and mass

You will need 1 cm³ blocks that link together and a digital kitchen scale.

1 a Build a model from 8 blocks.
b Measure its mass on the kitchen scale.
c Complete: Volume of 8 cm³ = Mass of _____ grams

2 Write a statement about how the volume of the model relates to its mass.

_____

_____

3 **Build** four different rectangular prism models from the blocks.

4 Write the **volume** of each model in cubic centimetres into the table.

5 **Estimate the mass** of each model in grams and write it in the table.

6 **Measure the mass** of each model on the kitchen scale and write it in the table.

7 Put a tick in the **accuracy** column if your estimate was within 10 grams of the measurement.

	Volume	Mass estimate	Mass measurement	Accuracy
A				
B				
C				
D				

8 a Were your estimates accurate? _____
b Why?

_____

_____

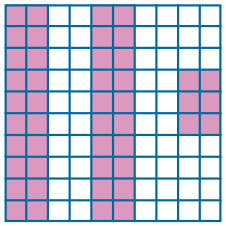
I can investigate by:

☐ measuring volume ☐ measuring mass

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Checkpoint 2

1 Write the tenths and the hundredths and the decimal. p 5



_____ + _____

= _____

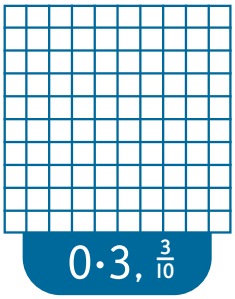
p 5

2 Tick the largest, circle the smallest.

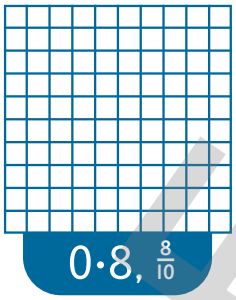
0·25 **0·09** **0·41** **0·39**

3 Colour to show tenths. p 4

a

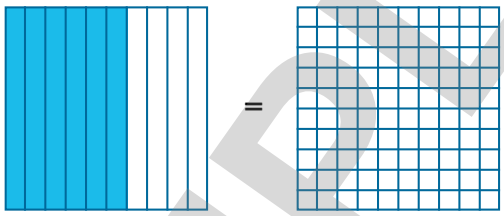


b



p 3

4 Colour to show the equivalent fraction.



5 Write the decimal. p 5

a $\frac{2}{10}$ = _____ b $\frac{7}{10}$ = _____

6 Circle the digit worth 1,000. p 7

1,171,518

p 7

7 Write 4,578,903 in expanded notation.

_____

_____

8 Compare using <, > or =. p 8

a 349,305 ☐ 349,306

b 381,450 ☐ 38,145

c 5,782,910 ☐ 5,728,910

9 Answer with the place value. p 10

a 0·98 has 9 _____

b 0·98 has 8 _____

p 11

10 Write **equals**, **is more than** or **is less than** to make the statements true.

a 0·7 _____ 0·2

b 0·9 _____ 0·90

c 0·30 _____ 0·6

11 Round 437,280 to the nearest: p 12

a hundred _____

b thousand _____

c ten thousand _____

d hundred thousand _____

12 Round to the nearest whole number. p 14

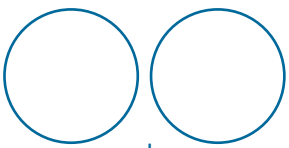
a 3·2 _____ b 7·59 _____

13 Complete the table. p 16

	241
× 10	
× 100	
÷ 10	
÷ 100	

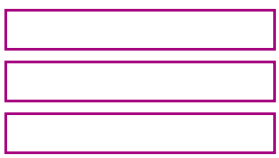
14 Colour to show: p 18

a



$1\frac{1}{2}$

b



$2\frac{1}{5}$

15 Write the mixed numbers above as improper fractions. p 18

a ☐/☐ b ☐/☐

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Checkpoint 2

16 Write two equivalent fractions. p 19

$\frac{2}{3} = \frac{\square}{\square} = \frac{\square}{\square}$

p 20

17 Compare these fractions using <, > or =.

a $\frac{2}{5} \square \frac{3}{10}$ b $\frac{2}{4} \square \frac{4}{8}$

c $\frac{1}{3} \square \frac{3}{6}$ d $\frac{1}{2} \square \frac{3}{5}$

18 Make an equivalent fraction. Show your work. p 23

$\frac{3}{4} =$ _____ $= \frac{\square}{\square}$

19 Shade the diagram to show: p 24

$\frac{5}{8} + \frac{7}{8} =$ _____



20 Make equivalent fractions to add. p 24

$\frac{2}{5} + \frac{3}{4} =$ _____ $=$ _____

21 Write an equivalent equation. p 29

17 + 14 = _____ + _____

22 Complete. p 30

3 + 9 = _____

30 + 90 = _____

300 + 900 = _____

23 Complete the equations. p 30

13 + 9 = _____ _____ − 9 = _____

9 + 13 = _____ _____ − 13 = _____

24 p 31

?	380
975	

? = _____

25 a
$$\begin{array}{r} 532 \\ +\ 117 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 469 \\ +\ 253 \\ \hline \\ \hline \end{array}$$
p 34

26 a
$$\begin{array}{r} 579 \\ -\ 224 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 785 \\ -\ 352 \\ \hline \\ \hline \end{array}$$
p 36

27 a There are 326 grapes in one basket and 273 in another. How many altogether? p 41



$$\begin{array}{r} \square\square\square \\ +\ \square\square\square \\ \hline \\ \hline \end{array}$$

grapes

b 419 of the grapes are sent to the store. How many grapes left?

_____

_____

28 a 2 kg = _____ g p 43

b 9,000 g = _____ kg

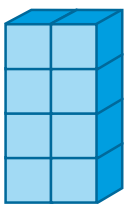
c 3,000 g = _____ kg

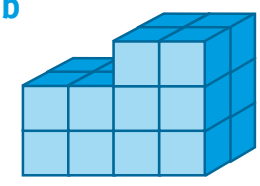
d 7·5 kg = _____ g

e 1,500 g = _____ kg

p 45

29 These models were built using cubic centimetre blocks. Write the volume.

a  _____

b  _____

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Number facts 3×, 4×, 5×, 10×

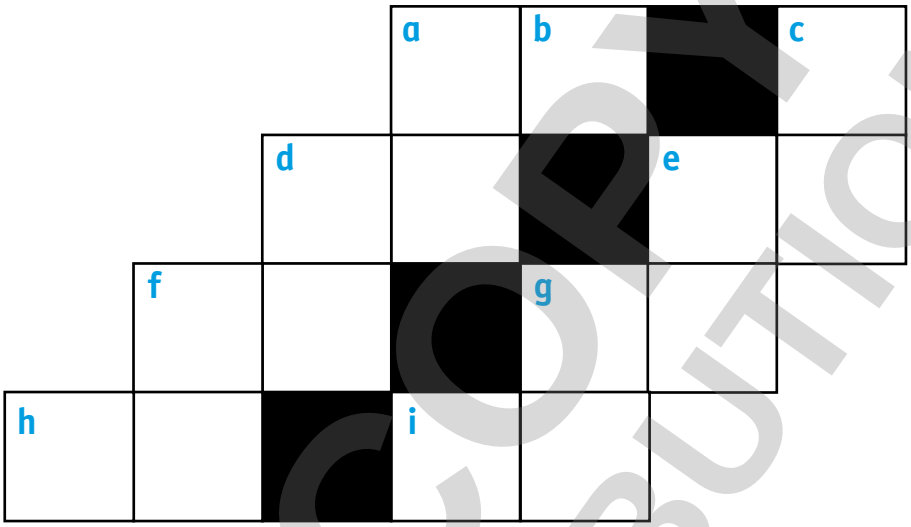
1

Across

- **a** 5 × 10
- **b** 6 × 0
- **c** 1 × 3
- **d** 3 × 8
- **e** 4 × 4
- **f** 5 × 9
- **g** 4 × 7
- **h** 4 × 8
- **i** 2 × 7

Down

- **a** 6 × 9
- **c** 6 × 6
- **d** 5 × 5
- **e** 3 × 6
- **f** 6 × 7
- **g** 4 × 6



2 Complete.

a

×	0	7	1	8	6	2	4	10	3	9	5
3											

b

×	7	3	9	6	0	5	1	8	2	10	4
4											

c

×	1	10	3	8	0	4	2	6	9	5	7
5											

d

×	6	0	10	1	5	7	2	8	4	9	3
10											

3 Fill in the missing numbers.

a 5 × _____ = 55 **b** 8 × _____ = 24 **c** _____ × 4 = 28 **d** 5 × _____ = 0

e 4 × _____ = 32 **f** 6 × 5 = _____ **g** 4 × _____ = 4 **h** 5 × 9 = _____

i _____ × 4 = 16 **j** 7 × _____ = 21 **k** _____ × 9 = 36 **l** _____ × 3 = 27

Challenge!

Jo-Jo had 2 mice.

Every month the number of mice doubled.

In how many months would there be 2,048? ☐



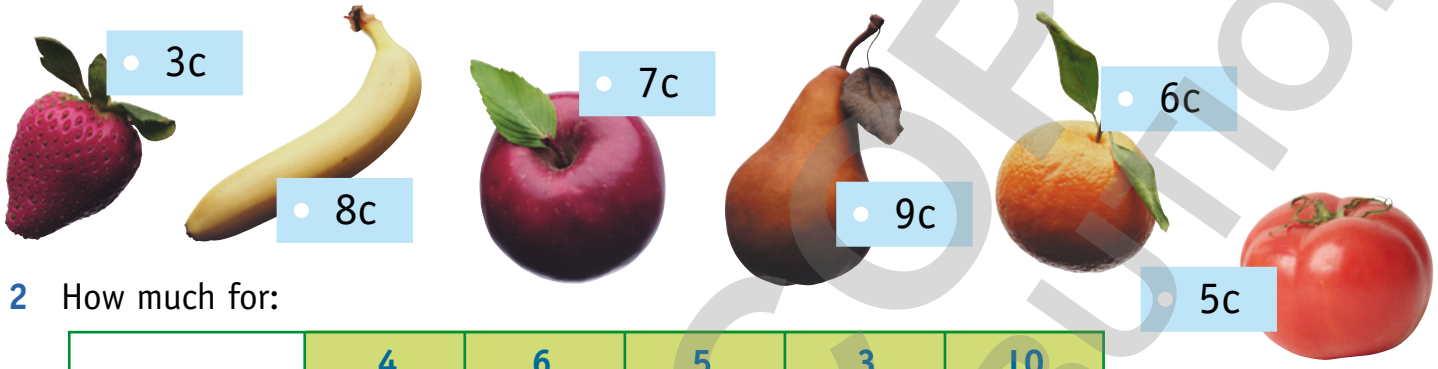
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Number Operations: Memorising multiplication facts for 2s to 12s; **Algebra** Equations and relationships: Completing open number sentence

Number facts 6×, 14×

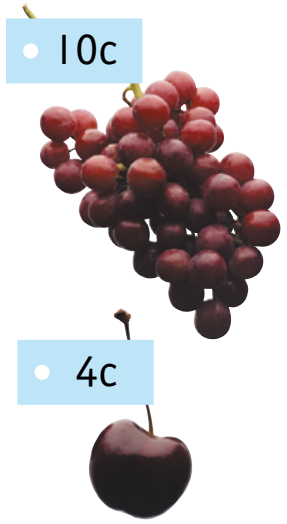
1

×	7	3	9	6	0	5	1	8	2	10	4
6											



2 How much for:

	4	6	5	3	10
a strawberries					
b bananas					
c apples					
d pears					
e oranges					
f tomatoes					
g grapes					
h cherries					



3 Do you know your 14 times table? It is easy if you know the 4 times table and 10 times table.

14 times table

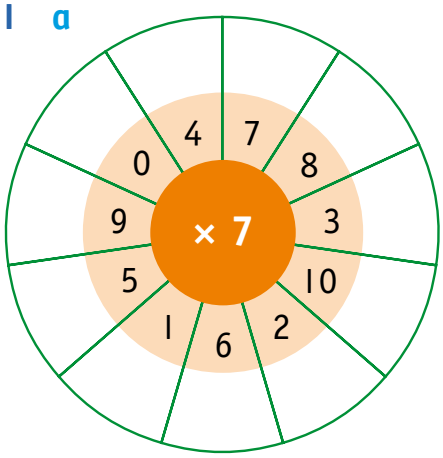
a	1 × 10 = 10	1 × 4 = 4	1 × 14 = 10 + 4 =
b	2 × 10 = 20	2 × 4 = 8	2 × 14 = + =
c	3 × 10 =	3 × 4 =	3 × 14 = + =
d	4 × 10 =	4 × 4 =	4 × 14 = + =
e	5 × 10 =	5 × 4 =	5 × 14 = + =
f	6 × 10 =	6 × 4 =	6 × 14 = + =
g	7 × 10 =	7 × 4 =	7 × 14 = + =
h	8 × 10 =	8 × 4 =	8 × 14 = + =
i	9 × 10 =	9 × 4 =	9 × 14 = + =
j	10 × 10 =	10 × 4 =	10 × 14 = + =



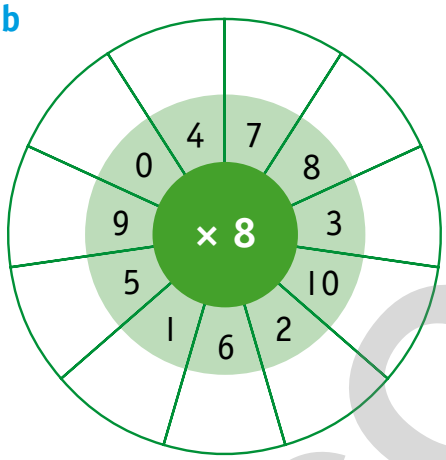
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Number facts 7×, 8×, 9×

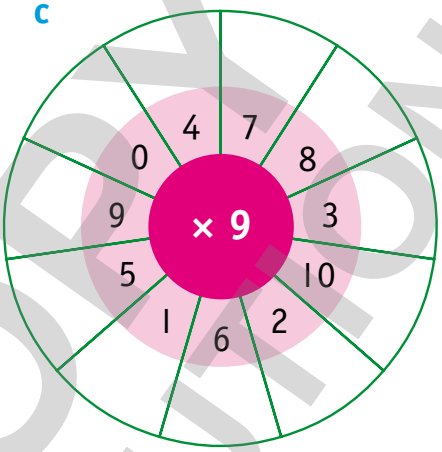
1 **a**



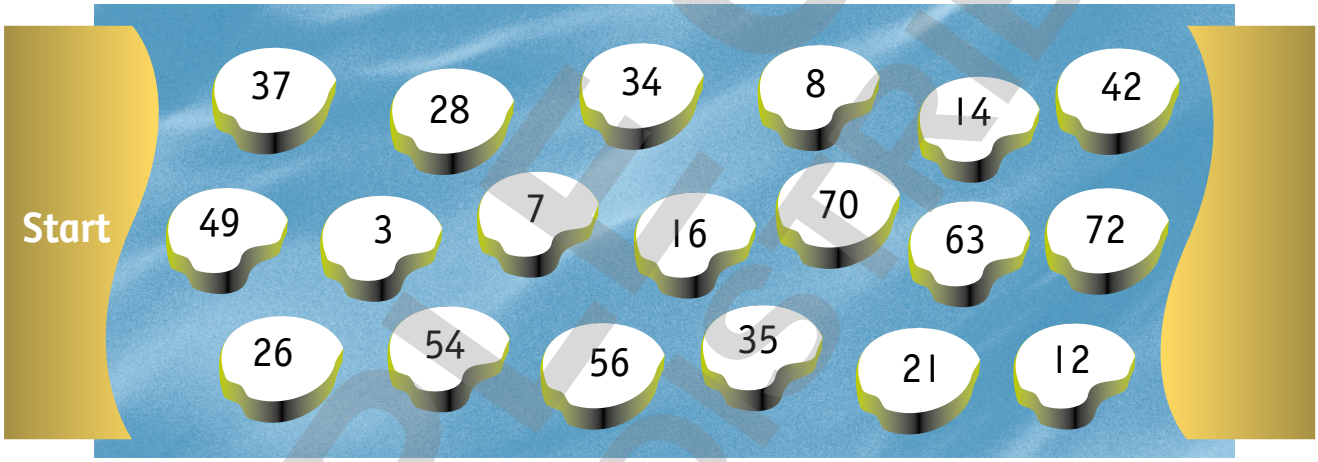
b



c



2 Cross the river by stepping only on numbers in the 7 times table. Colour the numbers as you cross.



3 Count in eights.



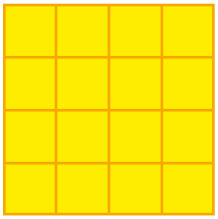
4 Circle the prices that are multiples of 9c or $9.

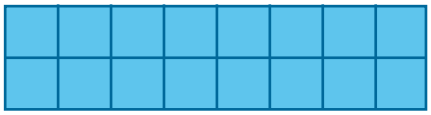


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Factors

1, 16, 2, 8, 4 are all factors of 16.

a 

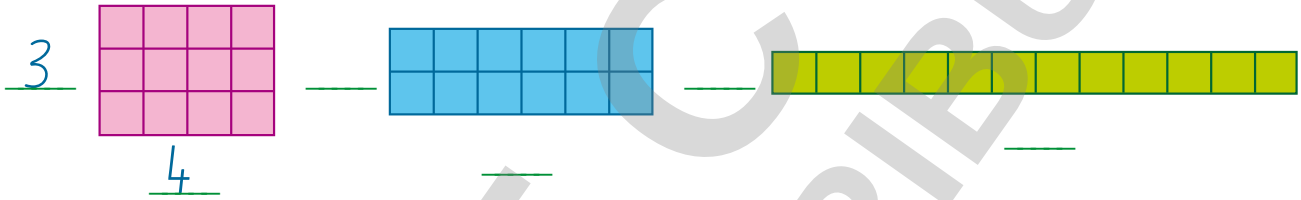
b 

c 

1 How many squares?

a $4 \times 4 =$ _____ b $2 \times 8 =$ _____ c $16 \times 1 =$ _____

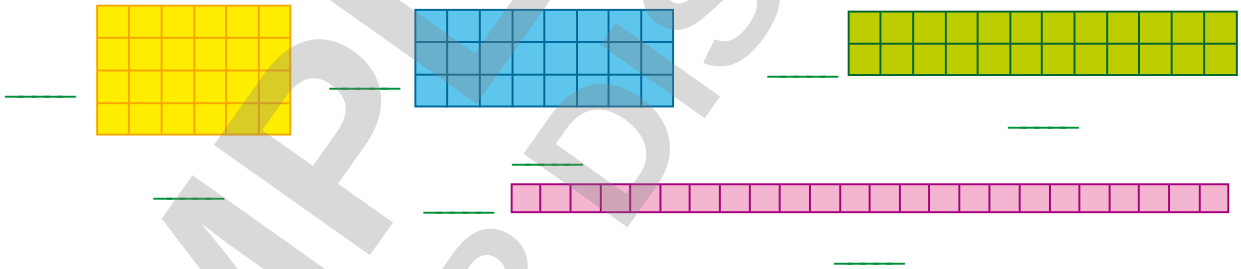
2 Use the diagrams to answer the questions.



a How many squares in each diagram? _____

b What are the factors of 12? _____ _____ _____ _____ _____ _____

3 Label each array.



a How many squares in each diagram? _____

b What are the factors of 24? _____ _____ _____ _____ _____ _____ _____ _____

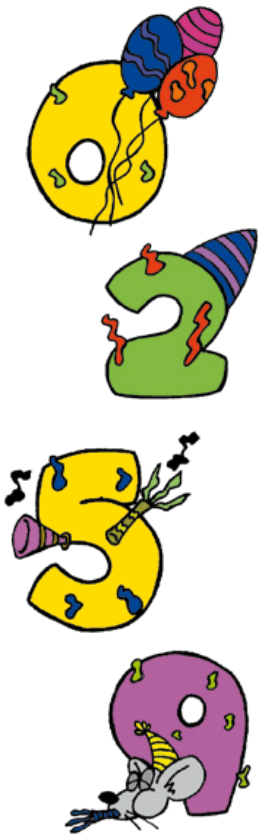
4 a Draw arrays for 30.

b What are the factors of 30? _____ _____ _____ _____ _____ _____ _____ _____

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Discover factors

1 Complete this multiplication square neatly and lightly in pencil.



×	1	2	3	4	5	6	7	8	9	10	11	12
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

2 True or false?

a 5 is a factor of 12. _____

b 9 is a factor of 27. _____

c 8 is a factor of 32. _____

d 7 is a factor of 27. _____

e 1 is a factor of 21. _____

f 6 is a factor of 54. _____

g 3 is a factor of 1. _____

h 4 is a factor of 14. _____

i 5 is a factor of 25. _____

j 4 is a factor of 16. _____

k 2 is a factor of 21. _____

l 5 is a factor of 18. _____

m 5 is a factor of 36. _____

n 10 is a factor of 72. _____

o 3 is a factor of 24. _____

p 10 is a factor of 34. _____

I can solve problems by:

☐ making a list ☐ identifying factors

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Missing multiples



The young bears are lost. Match the mothers with their children. Give your reasons why.



2 _____ _____ _____

Reason _____

3 _____ _____ _____

Reason _____

4 _____ _____ _____

Reason _____

5 _____ _____ _____

Reason _____

HINT! Each mother can only have 3 children.

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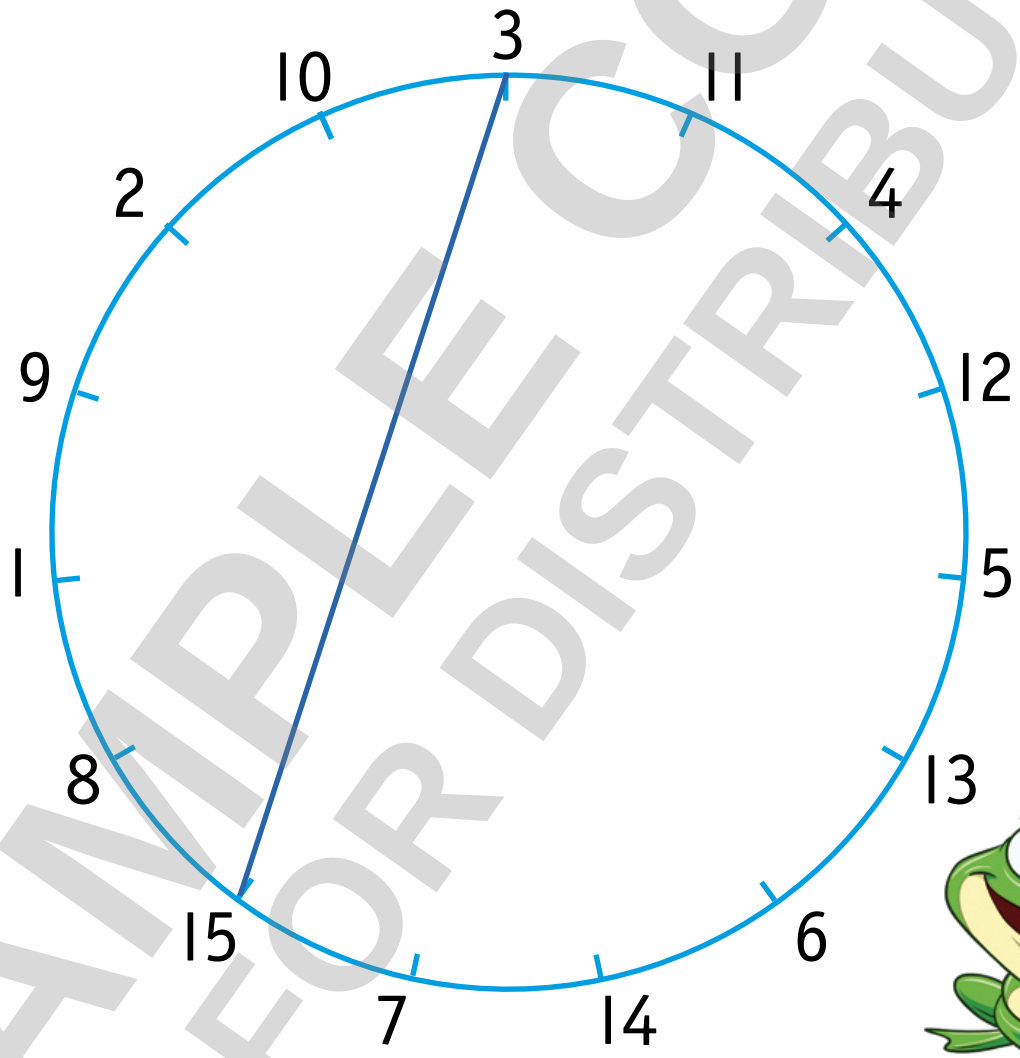
Multiples

A **multiple** is the answer you get when you **multiply a number**.
5 × 1 = **5**, **5** × 2 = **10**, **5** × 3 = **15**. So **5**, **10** and **15** are **multiples** of **5**.

1 Write out the multiples of 3 up to 15.

_____

2 Start at 3. Use a straight line to join it to the next multiple of 3. Continue until you have reached 15.





3 What shape have you made? _____

4 a Circle the multiples of 5 in blue.

b Which number is a multiple of 3 and 5? _____

5 a Circle the multiples of 4 in yellow.

b Which number is a multiple of 3 and 4? _____

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Multiple patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1 a Put a yellow stripe on the multiples of 2.

b Put a blue stripe on the multiples of 3.

c Which numbers have yellow and blue?

_____

_____

_____

d These numbers are multiples of _____

e Why? Think about multiplication facts.

_____

_____

_____

_____

2 a Put a red stripe on the multiples of 4.

b Which numbers have red and yellow? _____

_____

c These numbers are multiples of _____.

d Why? _____

_____

3 a Which numbers have blue and red? _____

b These numbers are multiples of _____.

c Why? _____

_____

4 a Put a green stripe on the multiples of 5.

b Which numbers have green and yellow? _____

c These numbers are multiples of _____.

d Why? _____

_____

5 a Put a purple stripe on the multiples of 9.

b Which other colour always shows up on the multiples of 9? _____

c Why? _____

_____

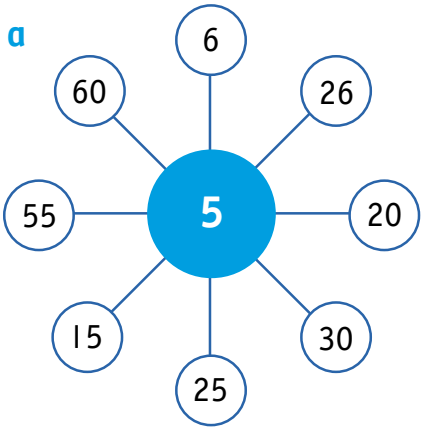
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Factors and multiples

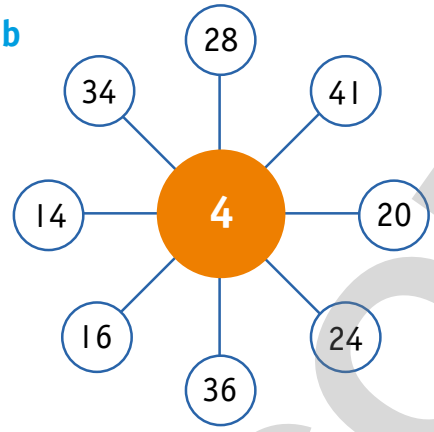
TERM 2
Week 2

1 Colour the multiples of the middle number.

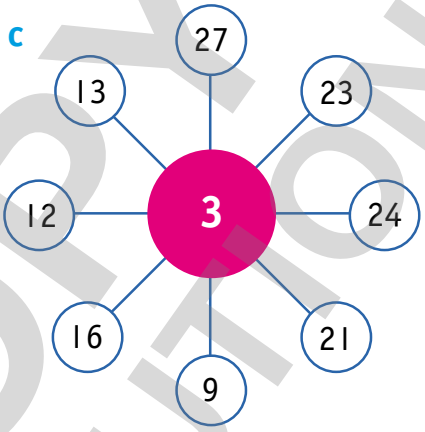
a



b



c



A **factor** is a whole number that **divides exactly into another whole number**.
The **factors** of **12** are **1**, **2**, **3**, **4**, **6**, **12** because:
12 ÷ **1** = 12, **12** ÷ **2** = 6, **12** ÷ **3** = 4, **12** ÷ **4** = 3, **12** ÷ **6** = 2, **12** ÷ **12** = 1

2 Find the factors of each number. Use division facts to help you.

a 16 _____

b 18 _____

c 20 _____

d 30 _____

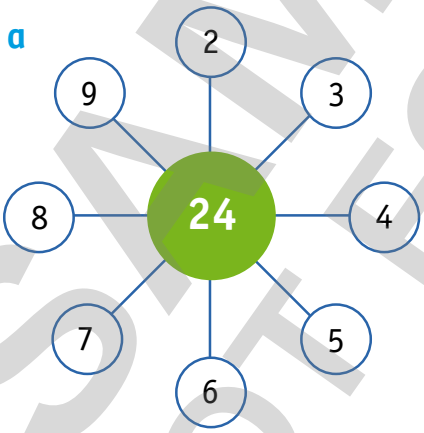
e 40 _____

3 **a** Which numbers are factors of all five numbers? _____

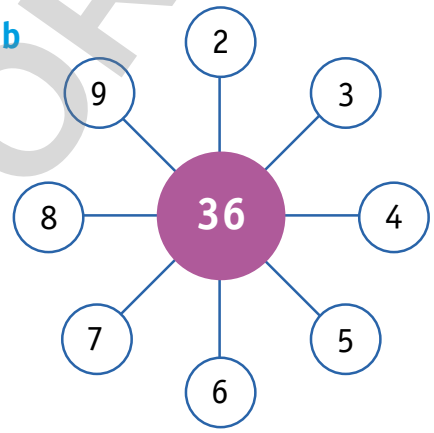
b Which number has the most factors? _____ How many factors does it have? _____

4 Colour the factors of the middle number.

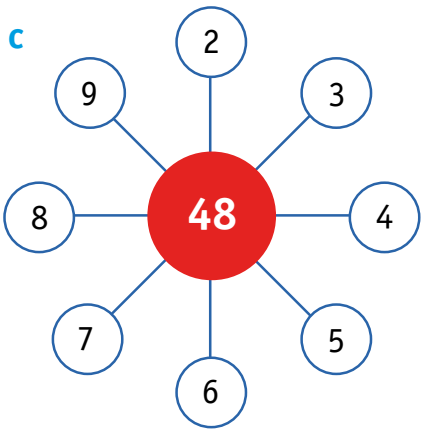
a



b



c



Mastery Checklist I can:

- ☐ identify multiples of 2, 3, 4, 5, 6, 7, 8, 9 up to 100
- ☐ identify numbers that are multiples of more than one number
- ☐ identify factors of numbers within 100 using division facts
- ☐ remember the times tables from 1 × 1 to 12 × 12

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Patterns using multiples

1 Complete this multiplication square neatly in pencil.

×	1	2	3	4	5	6	7	8	9	10	11	12
1												
2		4										
3									27			
4												
5					25							
6												
7								56				
8												
9				36								
10										100		
11							77					
12												



2 Draw a diagonal line ⟋ through every multiple of 3.

3 Draw a back slash line ⟍ through every multiple of 4.

4 Draw a horizontal line ― through every multiple of 5.

5 Which numbers have:

a two lines? _____

b three lines? _____

c Explain why these numbers have more than one line.

_____

I can solve problems by:

☐ identifying multiples ☐ looking for and identifying patterns

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Number facts puzzle

TERM 2
Week 3

This shows a mixed-up multiplication square. Use the clues to fill in the rest of the table.

×	6					5				
4	24								16	
						5		7		
				24	72					
										60
			16					14		
				21					28	
		6			27					
						45				90
		10								

Draw a diagram

Use an 11 × 11 square and design your own mixed-up multiplication square.

Make sure you can solve it.

Challenge!

Write out the facts for 1 × 11 up to 9 × 11. Explain the pattern.

Write out the facts for 1 × 12 up to 4 × 12, then 6 × 12 to 9 × 12.

Explain the pattern in the ones and tens.

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Odds and evens (× ÷)

Answer the sums and complete the rules.

1 **a** 2 × 10 = _____ **b** 8 × 4 = _____
c 6 × 4 = _____ **d** 6 × 10 = _____
e 10 × 10 = _____ **f** 14 × 2 = _____

Rule
even × even = _____

2 **a** 3 × 5 = _____ **b** 5 × 7 = _____
c 9 × 3 = _____ **d** 1 × 13 = _____
e 11 × 3 = _____ **f** 7 × 3 = _____

Rule
odd × odd = _____

3 **a** 6 × 3 = _____ **b** 4 × 5 = _____
c 7 × 2 = _____ **d** 8 × 3 = _____
e 5 × 8 = _____ **f** 10 × 3 = _____

Rule
odd × even = _____
even × odd = _____

4 **a** 12 ÷ 6 = _____ **b** 16 ÷ 4 = _____
c 32 ÷ 4 = _____ **d** 72 ÷ 8 = _____
e 50 ÷ 10 = _____ **f** 30 ÷ 6 = _____

Rule
even ÷ even = _____
or _____

5 **a** 9 ÷ 3 = _____ **b** 25 ÷ 5 = _____
c 21 ÷ 7 = _____ **d** 15 ÷ 3 = _____
e 45 ÷ 9 = _____ **f** 27 ÷ 9 = _____

Rule
odd ÷ odd = _____

6 **a** 12 ÷ 3 = _____ **b** 30 ÷ 5 = _____
c 28 ÷ 7 = _____ **d** 18 ÷ 3 = _____
e 90 ÷ 9 = _____ **f** 36 ÷ 9 = _____

Rule
even ÷ odd = _____

7 Use the rules to check the answers. Tick if they follow the rule.

a 52 × 4 = 209 **b** 13 × 17 = 222
c 216 ÷ 4 = 54 **d** 327 ÷ 3 = 109
e 124 × 3 = 373 **f** 168 ÷ 3 = 56



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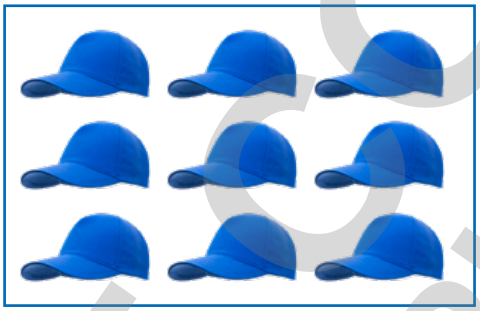
Multiplication warehouse

TERM 2
Week 3













At the warehouse, goods are sold only in whole boxes.

1 In one box how many:

a shoes? _____ b hats? _____ c necklaces? _____

d shirts? _____ e belts? _____ f shorts? _____

2 Mr Short ordered 5 boxes of each item, Mrs Hall ordered 8 boxes of each item and Miss Fellow ordered 6 boxes of each item. How many did they receive?

	shirts	hats	belts	shorts	necklaces	shoes
a Mr Short						
b Mrs Hall						
c Miss Fellow						

3 How many in:

a 9 boxes of necklaces? _____ b 3 boxes of belts? _____

c 7 boxes of shorts? _____ d 7 boxes of shirts? _____

e 4 boxes of shoes? _____ f 9 boxes of hats? _____

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Multiplication algorithm

TERM 2
Week 3

1 Write the equation and an algorithm for each.

a hands on 7 clocks



7 × 2 = _____

```
  7
× 2
-----
-----
```

b legs on 9 dogs



9 × 4 = _____

```
  9
× 4
-----
-----
```

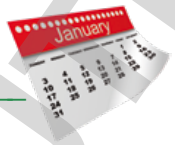
c toes on 8 feet



____ × ____ = _____

```
  □
× □
-----
-----
```

d days in 7 weeks



____ × ____ = _____

```
  □
× □
-----
-----
```

e corners on 9 triangles



____ × ____ = _____

```
  □
× □
-----
-----
```

f eyes on 10 owls



____ × ____ = _____

```
  □□
×  □
------
------
```

2 Use multiplication facts to answer.

a 9 × 5 = _____	**b** 7 × 1 = _____	**c** 6 × 2 = _____	**d** 5 × 0 = _____	**e** 7 × 8 = _____	**f** 8 × 6 = _____
g 6 × 5 = _____	**h** 8 × 8 = _____	**i** 7 × 4 = _____	**j** 9 × 7 = _____	**k** 10 × 8 = _____	**l** 5 × 7 = _____
m 9 × 6 = _____	**n** 10 × 5 = _____	**o** 8 × 9 = _____	**p** 7 × 6 = _____	**q** 4 × 8 = _____	**r** 9 × 9 = _____

3 Do you know the multiply by 11 and 12 facts?

a 11 × 7 = _____	**b** 12 × 3 = _____	**c** 11 × 11 = _____	**d** 12 × 6 = _____	**e** 11 × 12 = _____	**f** 12 × 12 = _____

Mastery Checklist I can:

- ☐ remember and apply the × ÷ facts for 1-10
- ☐ check answers using the × ÷ odd/even rules
- ☐ use algorithms to multiply

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Making teams

Divide your class into teams for different activities. Write a multiplication fact to show how many teams you can make. Sometimes you might have to leave some students out to make the teams. Calculate how many students are left out and circle the answer.

For example, my class has 21 students.

$3 \times 7 = 21$ Teams of 3 = 7

$4 \times 5 = 20$ Teams of 4 = 5 $21 - 20 =$ (1)



My class has _____ children.

Show how your class can be arranged in:

Teams of 3 = _____

_____ × 3 = _____

Children left over = _____

Teams of 4 = _____

_____ × 4 = _____

Children left over = _____

Teams of 5 = _____

_____ × 5 = _____

Children left over = _____

Teams of 6 = _____

_____ × 6 = _____

Children left over = _____

Teams of 7 = _____

_____ × 7 = _____

Children left over = _____

Teams of 8 = _____

_____ × 8 = _____

Children left over = _____

What size were the teams that had no children left over? _____

How can you use this information? _____

_____

I can solve problems by:

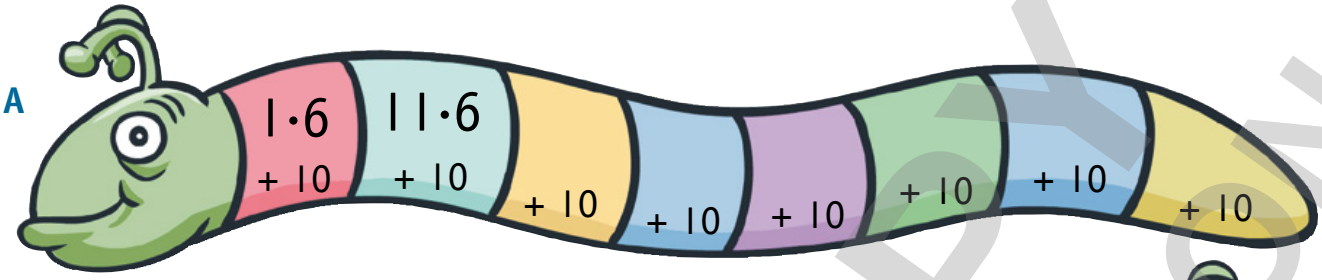
☐ knowing my multiplication facts ☐ writing equations

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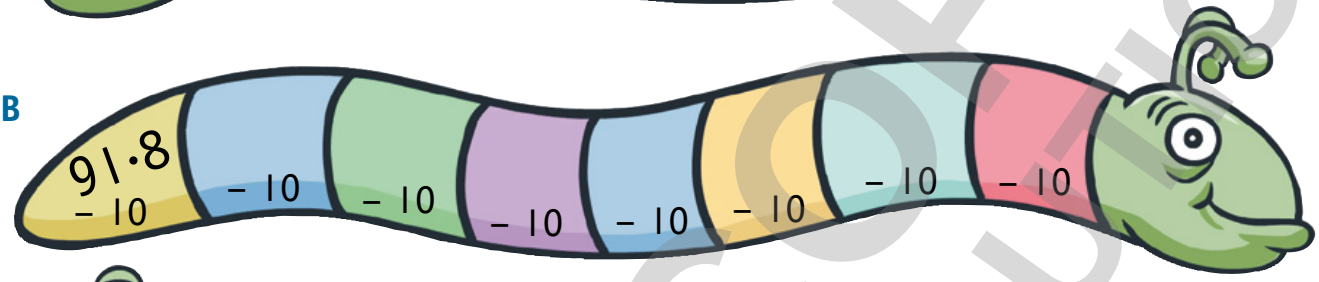
Number Operations: Applying mental strategies, number facts, derived facts, factor pairs, and multiples to multiply and divide increasingly large numbers; Division can be represented as grouping; Division may result in a whole number quotient or a quotient with a remainder, represented as a whole number

Patterns with 10

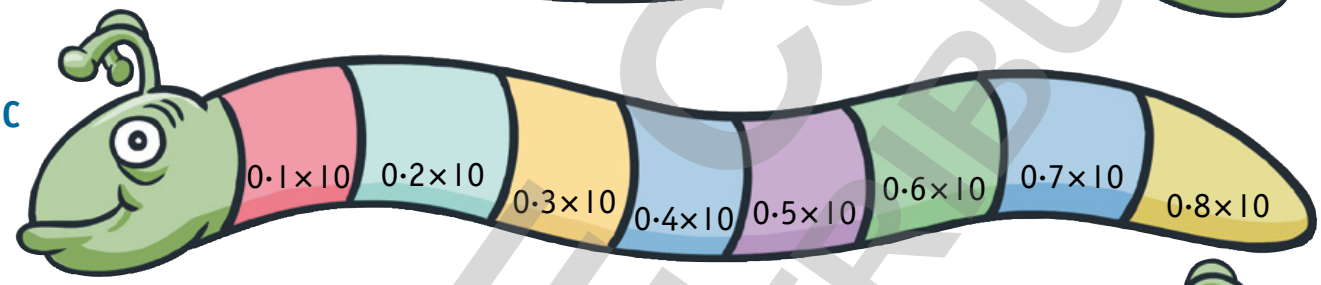
A



B



C



D



1 Complete each pattern.

2 Write what happens each time.

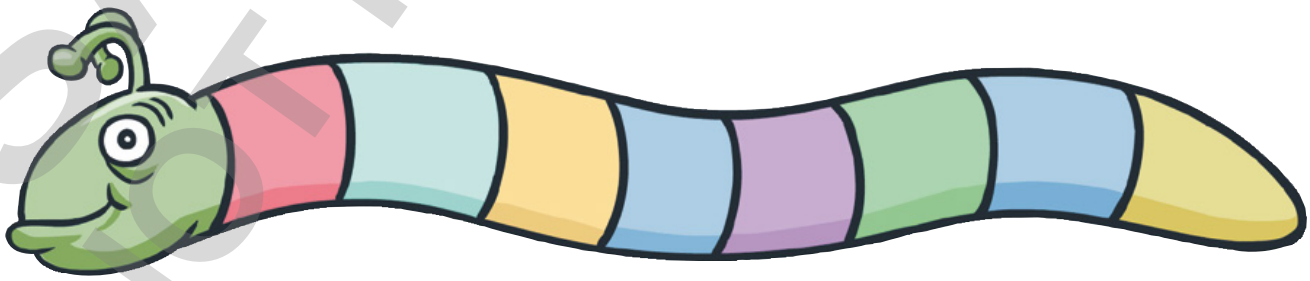
A _____

B _____

C _____

D _____

3 Now make up another pattern using whole numbers and decimals and × 10 or ÷ 10 . Write what happens.



_____

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More patterns with 10 and 100

1 Use what you found out on page 65 to complete the following patterns and state the rule.

a 0·2, _____, 20·2, _____, _____, 50·2, _____, 70·2 **Rule:** _____

b 1·9, 11·9, _____, _____, _____, _____ **Rule:** _____

c _____, 113·5, _____, 93·5, _____, _____ **Rule:** _____

d 0·6, 6·0, _____, _____, _____, _____ **Rule:** _____

e 0·12, _____, 12·0, _____, _____, _____ **Rule:** _____

f 1,000,000, _____, _____, _____, 100 **Rule:** _____

2 Complete each pattern following the given rule.

a Add 10·1 3·4, _____, _____, _____, _____

b Subtract 10·1 99·9, _____, _____, _____, _____

c Multiply by 10 0·3, _____, _____, _____, _____

d Multiply by 100 0·8, _____, _____, _____, _____

e Divide by 10 32,000, _____, _____, _____, _____

3 Write the next term in each pattern. What is the rule?

Rule:

a 10·6, 106, 1,060, 10,600, _____ _____

b 3·5, 4·5, 5·5, 6·5, _____ _____

c 22·3, 22·4, 22·5, 22·6, _____ _____

d 124·5, 114·5, 104·5, 94·5, _____ _____

e 16,000, 1,600, 160, 16, _____ _____

f 23·9, 123·9, 223·9, 323·9, _____ _____

4 Find the rest of each pattern. Join them with a line.

a 2·4, 12·4, 22·4,

b 0·06, 0·6, 6,

c 750,000, 75,000, 7,500,

60, 600, 6,000, 60,000

750, 75, 7·5, 0·75

32·4, 42·4, 52·4, 62·4



Challenge!

Find the rule and continue the pattern.

1 33, 44, 55, ☐, ☐, ☐ Rule: _____

2 24, 36, 48, ☐, ☐, ☐ Rule: _____

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Patterns with thousands

TERM 2
Week 4

1 Count in 1,000s.

a | 1,020 | 2,020 | 3,020 | | | |

b | 729,545 | 730,545 | 731,545 | | | |

2 Count in 10,000s.

a | 13,055 | 23,055 | 33,055 | | | |

b | 163,000 | 173,000 | 183,000 | | | |

c | 822,954 | 832,954 | 842,954 | | | |

3 Count in 100,000s.

a | 400,000 | 500,000 | 600,000 | | | |

b | 324,278 | 424,278 | 524,278 | | | |

4 Write the next number in the pattern. What number is being added each time?

a | 147,500 | 247,500 | 347,500 | | **Rule: +** _____

b | 249,153 | 250,153 | 251,153 | | **Rule: +** _____

5 Write a counting pattern that finishes at 950,000.

Challenge! Count to continue each pattern.

247,000	358,000	469,000			
123,456	234,567	345,678			

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Patterns of multiples

TERM 2
Week 4

1 These are multiplication sequences. Find the rule for each sequence and fill in the missing terms.

eg 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

Rule: multiples of 4 up to 48, starting at 12.

a _____, 24, 27, _____, _____, _____, _____

Rule: _____

b 25, _____, 35, _____, _____, _____, _____

Rule: _____

c _____, _____, _____, 16, 20, _____, _____

Rule: _____

d 18, 24, _____, _____, _____, _____

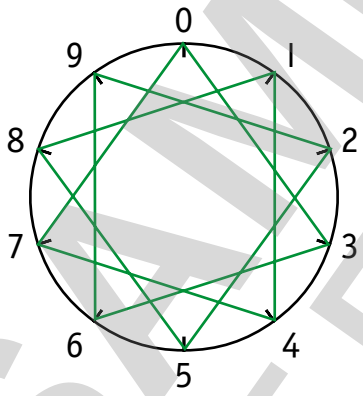
Rule: _____

e 30, _____, _____, _____, _____, 80

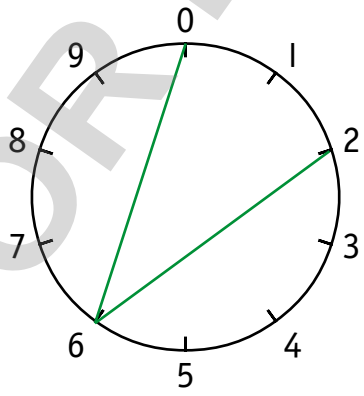
Rule: _____

2 Digit patterns. Connect all the ones digits from the multiples to see a design.

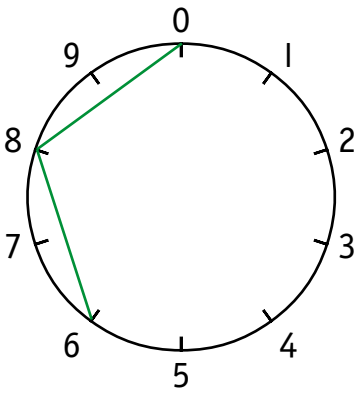
3 × table



6 × table



8 × table



0, 7, 14, 21, 28, etc.

Mastery Checklist

I can:
- ☐ work with patterns using whole numbers and decimals
- ☐ recognise and continue patterns using all four operations
- ☐ find the rules for and describe number patterns
- ☐ identify, continue and list patterns of multiples



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Lucky numbers



You can choose your own lucky numbers for the *Multiple Luck of the Draw*.
The numbers are all the multiples of 5, 6, 8 and 10 up to 100.
Which 5 numbers between 0 and 100 will you choose?

1 Complete the table by finding the common multiples. Only write the multiples that also appear in at least one other list.

Multiples of 5	Multiples of 6	Multiples of 8	Multiples of 10
10	24	8	10
20	30	16	20
30	48	24	30
40	60	40	40

You want to buy the numbers that appear most often in the multiples of 3, 5, 6, 8 and 10 up to 100.

2 Circle the numbers that show up in three lists. Write them here:

3 Which numbers appear in four lists? Write them here:

4 Which numbers will you choose? Write them here.

☐ ☐ ☐ ☐ ☐

5 Explain your choices.

I can solve problems by:

☐ writing out the multiples of numbers ☐ making a list

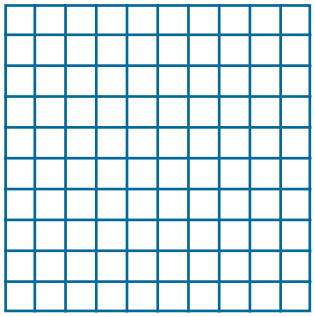
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Equivalent fractions and decimals

TERM 2
Week 5

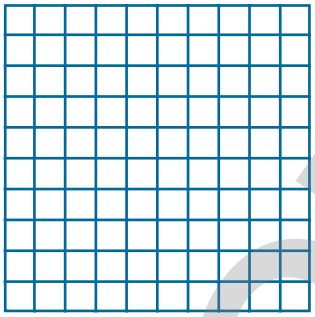
1 Colour each fraction on the 100 grid. How many 100 squares are coloured?

a $\frac{1}{2}$



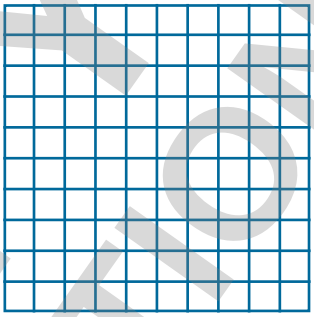
_____ squares

b $\frac{1}{4}$



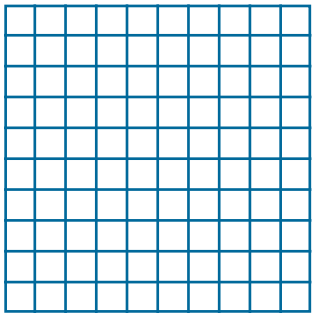
_____ squares

c $\frac{3}{4}$



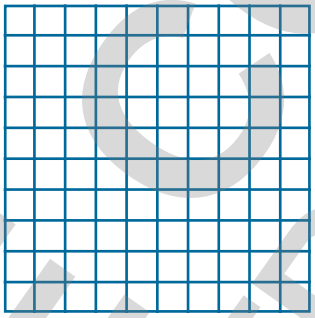
_____ squares

d $\frac{2}{10}$



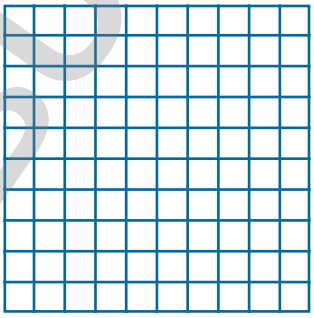
_____ squares

e $\frac{1}{5}$



_____ squares

f $\frac{4}{5}$



_____ squares

2 Complete the table.

	Fraction	Hundredths	Decimal
a	$\frac{1}{2}$	$\frac{50}{100}$	0·5
b	$\frac{1}{4}$		
c	$\frac{3}{4}$		
d	$\frac{2}{10}$		
e	$\frac{1}{3}$		
f	$\frac{4}{5}$		

Equivalent fractions and decimals

The same amount can be written as:

- **a fraction**
- **an equivalent fraction**
- **a decimal**

$\frac{1}{2} = \frac{5}{10} = \frac{50}{100} = 0{\cdot}5$

3 Write the decimals in ascending order.

_____

_____

4 Write: **a** the largest fraction. _____ **b** the smallest fraction. _____

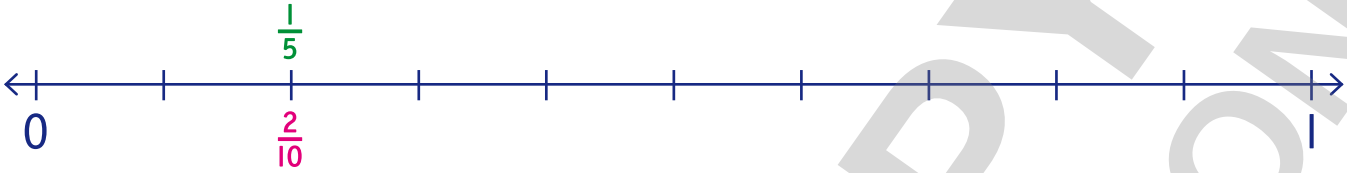
5 **a** $\frac{2}{5} = \frac{\square}{100} = \frac{\square}{10}$ **b** $\frac{3}{5} = \frac{\square}{100} = \frac{\square}{10}$

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Equivalent fractions

TERM 2
Week 5

1 Write the fifths and equivalent tenths on the number line.



2 Plot these fractions and their decimal equivalents on the number lines.

a $\frac{1}{2} = \frac{\square}{10} = 0.\square$



b $\frac{1}{5} = \frac{\square}{10} = 0.\square$



c $\frac{3}{5} = \frac{\square}{10} = 0.\square$



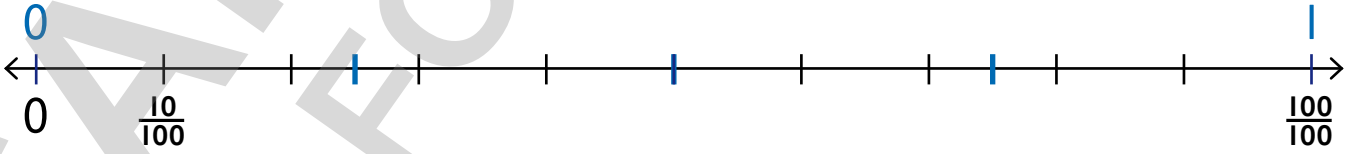
d $\frac{2}{5} = \frac{\square}{10} = 0.\square$



e $\frac{4}{5} = \frac{\square}{10} = 0.\square$



3 Write these fractions on the number line: **a** $\frac{1}{2}$ **b** $\frac{1}{4}$ **c** $\frac{3}{4}$



4 Write the equivalent hundredths under the number line.

5 Complete.

a $\frac{1}{2} = \frac{\square}{100} = 0.\square$ **b** $\frac{1}{4} = \frac{\square}{100} = 0.\square$ **c** $\frac{3}{4} = \frac{\square}{100} = 0.\square$

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Comparing decimals

whole number decimal point tenths hundredths

32,456·89

$= 32{,}456 + \frac{8}{10} + \frac{9}{100}$

1 Write the missing numbers.



a 74,982·36 = 74,892 + $\frac{3}{10}$ + $\frac{6}{100}$

b 89,304·86 = _____ + $\frac{\square}{10}$ + $\frac{\square}{100}$

c 1,530·24 = _____ + $\frac{\square}{10}$ + $\frac{\square}{100}$

d 248·37 = _____ + $\frac{\square}{10}$ + $\frac{\square}{100}$

e 109·40 = _____ + $\frac{\square}{10}$ + $\frac{\square}{100}$

f 3·85 = _____ + $\frac{\square}{10}$ + $\frac{\square}{100}$

2 Number the decimals in ascending order, from 1 (smallest) to 5 (largest).

a 32·14 ____ 32·35 ____ 32·86 5 32·09 1 32·1 ____

b 957·49 ____ 957·32 ____ 957·09 ____ 957·59 ____ 957·00 ____

c 1,493·36 ____ 1,493·02 ____ 1,493·67 ____ 1,493·15 ____ 1,493·5 ____

3 Write the equivalent fractions. Then write <, > or = in the box.

a $\frac{1}{2} = \frac{\square}{100}$ 0·5

b $\frac{1}{4} = \frac{\square}{100}$ 0·30



c 0·6 = $\frac{\square}{100}$ $\frac{3}{5}$

d $\frac{3}{4} = \frac{\square}{100}$ 0·70

e 0·4 = $\frac{\square}{100}$ $\frac{2}{5}$

f $\frac{4}{5} = \frac{\square}{100}$ 0·75

g $\frac{1}{10} = \frac{\square}{100}$ 0·2

h 0·5 = $\frac{\square}{100}$ $\frac{4}{10}$

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Real-world decimals

$1.40
1 whole dollar 40 cents (40 hundredths of a dollar)

$3.60
3 whole dollars 60 cents (60 hundredths of a dollar)

1 Write the missing numbers.

e.g. $8.20 = 8 dollars and 20 cents (hundredths)

a $6.55 = _____ dollars and _____ cents (hundredths)

b $9.70 = _____ dollars and _____ cents (hundredths)

c $4.10 = _____ dollars and _____ cents (hundredths)



2·4 metres
2 whole metres 40 centimetres (40 hundredths of a metre)

5·95 metres
5 whole metres 95 centimetres (95 hundredths of a metre)

2 Write the missing numbers.

e.g. 6·39 metres = 6 metres and 39 cm (hundredths)

a 3·64 metres = _____ metres and _____ cm (hundredths)

b 7·3 metres = _____ metres and _____ cm (hundredths)

c 10·15 metres = _____ metres and _____ cm (hundredths)



3 Write the decimal.

a 4 dollars and 15 cents = $ _____

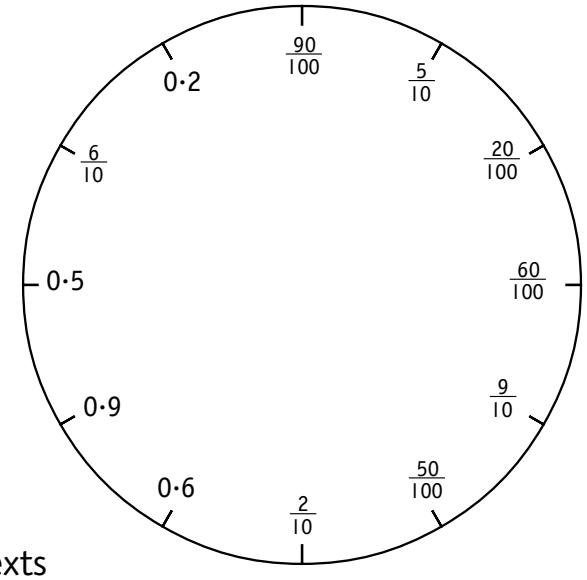
b 12 metres and 35 cm = _____ m

c 7 dollars and 90 cents = $ _____

d 3 metres and 7 cm = _____ m

e 5 dollars and 50 cents = $ _____

4 Join the matching decimals and fractions. Use a ruler. Each set makes a triangle.



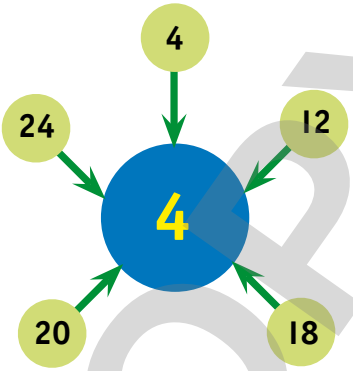
Mastery Checklist

I can:
- ☐ find decimal equivalents for tenths and hundredths
- ☐ find decimal equivalents for a half, fifths and quarters
- ☐ understand decimals in real-world contexts

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Checkpoint 3

1 Which multiple does not belong? ☐



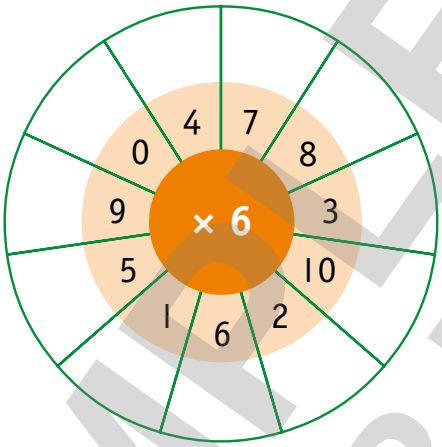
Write your answer in the box.

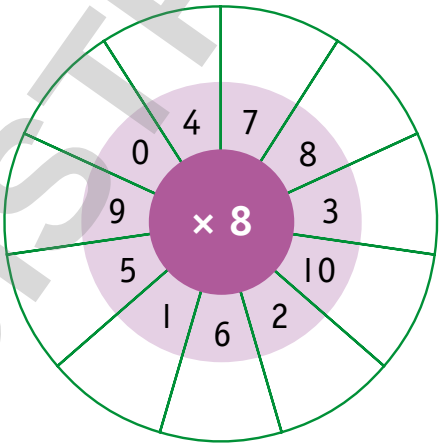
2 Each box holds 6 pencils. Josie bought 9 boxes.
How many pencils did Josie buy?

$6 \times \square = \square$



3





4 What comes next?

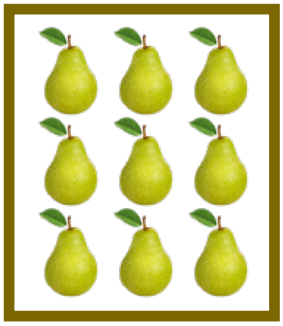
32.95, 329.5, 3,295, ?

Shade one bubble.

329·5 ○ 329,500 ○ 32,950 ○ 32·95 ○

5 How many pears in five boxes?

5 ○ 25 ○ 45 ○ 50 ○



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Checkpoint 3

Shade one bubble.

6 Which box shows the factors of 20?

1, 2, 3, 6, 10, 20 ⬭	1, 2, 4, 5, 10, 20 ⬭
1, 3, 4, 5, 8, 20 ⬭	1, 3, 4, 6, 10, 20 ⬭

Write your answer in the box.

7 Complete the rules for odd numbers.

odd + odd = ☐ odd − odd = ☐

odd × odd = ☐ odd ÷ odd = ☐

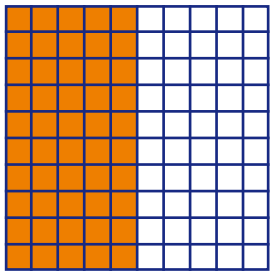
8 Describe the rule for this pattern.

15, 18, 21, 24, 27

Shade one bubble.

9 Which one is NOT equal to $\frac{1}{2}$?

0·5 ⬭ $\frac{5}{10}$ ⬭ 0·2 ⬭ $\frac{50}{100}$ ⬭



Write your answer in the box.

10 Write the number sentence.

81 beetles shared by 9 magpies.

☐ ÷ ☐ = ☐



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Division in the cake shop

TERM 2
Week 6

A cake shop has 48 cakes: 6 flavours with 8 cakes of each flavour.



Mr Dough wants to pack all 48 cakes into equal mixed boxes, with no cakes left over. Find six different ways he could do this.

1 How can he pack mixed boxes of cakes without having any left over? e.g. 3 boxes of 16.

a _____ b _____ c _____

d _____ e _____ f _____

2 How many boxes will there be if:

a Each flavour is packed into its own box. _____

b Each flavour is shared equally between 2 boxes. _____

c One cake of each flavour is packed into a box. _____

d Two cakes of each flavour are packed into a box. _____

3 Write a multiplication fact and a division fact to prove each answer.

a _____ b _____

c _____ d _____

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Number Operations: Applying mental strategies and number facts to multiply and divide; Division can be represented as grouping and sharing

How many?

÷ means to divide.



1 How many cages?

a 16 birds, 2 in each cage _____

b 24 birds, 6 in each cage _____

c 36 cats, 6 in each cage _____

d 16 rats, 4 in each cage _____

e 49 lizards, 7 in each cage _____

f 54 mice, 9 in each cage _____

g 60 rabbits, 10 in each cage _____

h 72 chooks, 8 in each cage _____

i 42 parrots, 7 in each cage _____

j 40 rabbits, 5 in each cage _____

2

a 81 ÷ 9 = ☐

b 35 ÷ 7 = ☐

c 8 ÷ 8 = ☐

d 64 ÷ 8 = ☐

e 56 ÷ 7 = ☐

f 18 ÷ 3 = ☐

g 27 ÷ 9 = ☐

h 21 ÷ 3 = ☐

i 50 ÷ 5 = ☐

j 45 ÷ 9 = ☐

k 32 ÷ 4 = ☐

l 48 ÷ 8 = ☐

3

a ☐ ÷ 6 = 9

b 14 ÷ ☐ = 2

c ☐ ÷ 5 = 5

d 21 ÷ ☐ = 3

e 9 ÷ 9 = ☐

f ☐ ÷ 10 = 4

g 10 ÷ ☐ = 1

h ☐ ÷ 10 = 10

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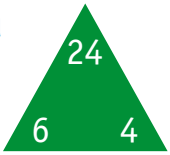
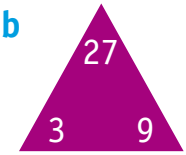
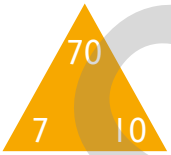
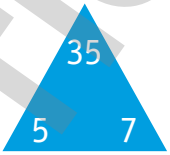
Division and multiplication



)‾ is another division symbol. $2\overline{)8}$ means 8 ÷ 2.

The answer 4 is written on top. $\begin{array}{r}4\\2\overline{)8}\end{array}$

1 Write × and ÷ facts for each.

a	b	c	d	e	f
					
4 × 6 = ____	____	____	____	____	____
6 × 4 = ____	____	____	____	____	____
24 ÷ 6 = ____	____	____	____	____	____
24 ÷ 4 = ____	____	____	____	____	____

2

a	b	c	d	e	f
$4\overline{)8}$	$2\overline{)4}$	$3\overline{)21}$	$3\overline{)9}$	$2\overline{)6}$	$8\overline{)32}$
g	**h**	**i**	**j**	**k**	**l**
$5\overline{)15}$	$3\overline{)6}$	$4\overline{)4}$	$2\overline{)8}$	$5\overline{)10}$	$6\overline{)42}$

3 Check your answers to question 2 by multiplying.

a 4 × 2 = 8	b 2 × ____ = ____	c 3 × ____ = ____
d 3 × ____ = ____	e 2 × ____ = ____	f 8 × ____ = ____
g 5 × ____ = ____	h 3 × ____ = ____	i 4 × ____ = ____
j 2 × ____ = ____	k 5 × ____ = ____	l 6 × ____ = ____

4 What operation will you use? Write a number sentence and the answer.

a Jim ate 4 apples every day. How many did he eat in 1 week?



_____

b Kylie ate 56 cherries last week. How many was that each day?



_____

c Farmer Hay had 36 sheep to put into 4 paddocks. How many sheep in each?



_____

d Farmer Oats had 5 paddocks with 8 horses in each. How many horses altogether?



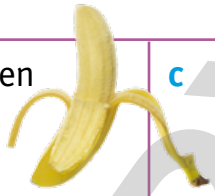
_____

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Number Operations: Memorising multiplication and corresponding division facts for 2s to 12s; Applying mental strategies and number facts to multiply and divide; Division can be represented as a standard written algorithm

Division

1 Write the number sentence and the answer.

a 12 oranges shared by 4 people.  _____ ÷ _____ = _____	**b** 15 bananas eaten by 3 monkeys.  _____ ÷ _____ = _____	**c** 56 nuts eaten by 8 squirrels.  _____ ÷ _____ = _____
d 33 sweets shared by 3 children.  _____ ÷ _____ = _____	**e** 63 snails eaten by 9 lizards.  _____ ÷ _____ = _____	**f** 42 days. How many weeks?  _____ ÷ _____ = _____
g 30 giraffes for 6 zoos.  _____ ÷ _____ = _____	**h** 42 bones for 6 dogs.  _____ ÷ _____ = _____	**i** 72 candles for 8 cakes.  _____ ÷ _____ = _____
j 70 books put into 7 boxes.  _____ ÷ _____ = _____	**k** 81 beads for 9 necklaces.  _____ ÷ _____ = _____	**l** 18 eggs for 6 cakes.  _____ ÷ _____ = _____

2 Follow the pattern.

a
8 ÷ 2 = _____
80 ÷ 2 = 40
800 ÷ 2 = 400

b
9 ÷ 3 = _____
90 ÷ 3 = _____
900 ÷ 3 = _____

c
12 ÷ 6 = _____
_____ ÷ 6 = _____
_____ ÷ 6 = _____

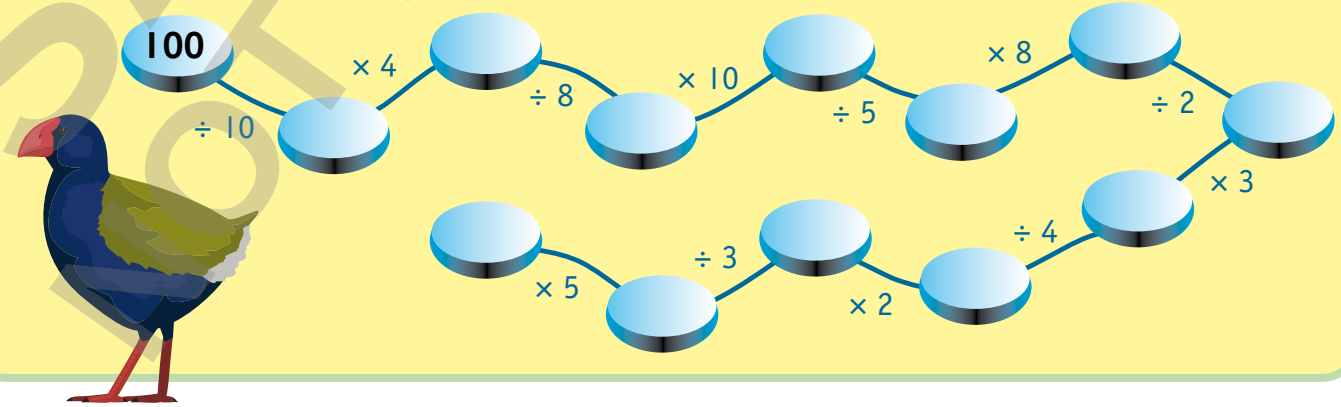
d
28 ÷ 7 = _____
_____ ÷ 7 = _____
_____ ÷ _____ = _____

e
48 ÷ _____ = 8
480 ÷ 6 = _____
_____ ÷ 6 = 800

f
_____ ÷ 5 = 7
_____ ÷ _____ = 70
_____ ÷ 5 = _____

Challenge!

Complete the path by following the instructions.



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Missing numbers

TERM 2
Week 6

1 Find the missing numbers for these number sentences.

a 7 × _____ = 21 **b** 9 × _____ = 18 **c** 5 × _____ = 25

d _____ × 4 = 24 **e** _____ × 6 = 30 **f** _____ × 5 = 35

2 **a** 50 = _____ × 10 **b** 35 = _____ × 7 **c** 42 = _____ × 6

d 36 = 6 × _____ **e** 45 = 9 × _____ **f** 28 = 4 × _____

3 Match the number sentences that have the same answer.

a

7 × 4	is the same as	4 × 4
8 × 5		10 × 4
6 × 3		14 × 2
7 × 6		6 × 6
6 × 8		4 × 12
4 × 9		3 × 14
2 × 8		2 × 9

b

8 × 7	is the same as	50 – 1
15 + 6		4 × 14
9 × 6		9 × 3
7 × 7		6 × 9
30 – 3		7 × 3
40 + 14		5 × 6
double 15		60 – 6

4 Match the story to two number sentences. Complete the number sentences.



a I bought 5 cards for 95c. How much was each card? _____



b I packed 56 kg of oranges equally into 8 bags. How many kilograms in each bag? _____



c The fisherman found a muddle of 64 octopus arms on the beach. How many octopuses were in the muddle? _____



d I rode my bike for 120 km over 10 days. How many km did I average each day? _____

56 ÷ 8 = _____

8 × _____ = 64

10 × _____ = 120

5 × _____ = 95

_____ × 8 = 56

64 ÷ 8 = _____

95 ÷ 5 = _____

120 ÷ 10 = _____

Mastery Checklist I can:

- ☐ divide 48 in multiple ways
- ☐ use multiplication and division facts
- ☐ find missing numbers in number sentences
- ☐ use division's inverse operation: multiplication

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Number Operations: Applying mental strategies, number facts, derived facts and factor pairs to multiply and divide increasingly large numbers;
Algebra Equations and relationships: Completing open number sentences

Division algorithms



For each question, write an algorithm. Find the answers.

1 The Flying Saucer Ride holds 9 children. How many rides are needed for:

a 18 children? **b** 54 children? **c** 27 children? **d** 72 children? **e** 45 children?

9) 18

2 The Ghost Train holds 6 children. How many trains are needed for:

a 36 children? **b** 48 children? **c** 18 children? **d** 42 children? **e** 6 children?

6) 36

3 The River Cave Ride holds 8 children. How many boats are needed for:

a 56 children? **b** 24 children? **c** 64 children? **d** 32 children? **e** 40 children?

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Mental division

TERM 2
Week 7

Estimate
370 ÷ 6
36 ÷ 6 = 6
Est. 60
231 ÷ 8
24 ÷ 8 = 3
Est. 30

1 A ghost train holds 6 children. How many trains are needed for:

a 15 children? _____ Why? _____

_____

b 35 children? _____ Why? _____

_____

2 Estimate these answers. A river boat holds 8 children.

How many boats are needed for:

a 158 children? _____ b 250 children? _____ c 629 children? _____

A flying saucer holds 9 children. How many flying saucers are needed for:

d 361 children? _____ e 187 children? _____ f 641 children? _____

3 Which ride?

a It took 4 rides for 36 children. _____

b It took 4 rides for 32 children. _____

c It took 4 rides for 24 children. _____



4 a How many groups of 4 in 28? _____ b Divide 70 by 10. _____

c Share 40 equally among 5. _____ d 9 divided by 9. _____

e How many threes make 21? _____ f Divide 54 equally among 6. _____

5 a 42 ÷ 7 = ☐ b ☐ ÷ 3 = 4 c 45 ÷ ☐ = 9

d ☐ ÷ 8 = 7 e 90 ÷ 9 = ☐ f 42 ÷ ☐ = 6

6 Complete each path.

a 80 ÷ 8 → ☐ × 4 → ☐ ÷ 8 → ☐ × 6 → ☐ ÷ 3 → ☐

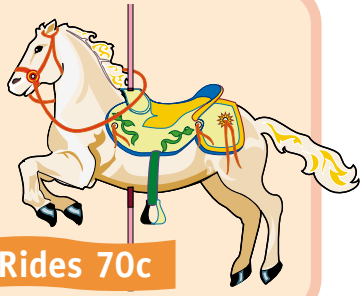
b 56 ÷ 7 → ☐ × 8 → ☐ ÷ 2 → ☐ ÷ 4 → ☐ × 9 → ☐

Trial and error

Mia bought twice as many Carousel Ride tickets as Manny.

Together their tickets cost $6.30.

How many tickets did each buy? ☐



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Number Operations: Applying mental strategies, number facts, derived facts, factor pairs, and multiples to divide increasingly large numbers; Dividing up to four-digit whole numbers by a one-digit divisor, with a remainder

Division check

Divide first

$$7\overline{)217} \quad 31$$

Multiply to check

$$31 \times 7 = 217$$

1 Work the division. Check your answer.

e.g. $6\overline{)120} \quad 20$

Check $20 \times 6 = 120$

a $7\overline{)287}$

Check

b $5\overline{)255}$

Check

c $4\overline{)364}$

Check

d $8\overline{)728}$

Check

e $2\overline{)180}$

Check

f $3\overline{)216}$

Check

g $8\overline{)568}$

Check

h $7\overline{)630}$

Check

i $9\overline{)729}$

Check

j $5\overline{)355}$

Check

2 Write an algorithm to answer each of these. Multiply to check your answer.

a A farmer picked 328 strawberries from his farm. He needs to put them into punnets of 8 strawberries. How many punnets will he need?

b Mrs Lucky's shop had 168 pencils. She needs to put them in boxes of 8. How many boxes does she need?

c I won the guessing competition with a guess of 287. How many jelly beans do I get if I share with my 6 friends?

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Using division

TERM 2
Week 7

1 Estimate each answer first. Then solve exactly. Check your answer using multiplication.

	Question	Estimate	Exact answer	Check
a	287 ÷ 7			× 7 = 287
b	328 ÷ 8			× 8 = 328
c	255 ÷ 5			× 5 = 255
d	364 ÷ 4			× 4 = 364

2 Tick the strategy you would use to solve each question. Then solve it.

	Question	Mental facts	Algorithm	Answer
a	72 ÷ 8			
b	108 ÷ 2			
c	918 ÷ 9			
d	355 ÷ 5			

3 Circle the operation you would use. Then solve.

a 369 daisies are divided into bunches of 9. How many bunches can be made?

× ÷

_____

b 186 rulers that are packed into boxes of 8. How many boxes are needed?

× ÷

_____

c Five friends share 255 stickers equally. How many stickers does each friend receive?

× ÷

_____

Challenge!

Sports Day

There are 320 students taking part in Sports Day.
Each team has 8 students.

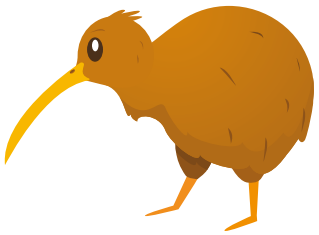


How many teams can be made? ☐

There are 5 games to play.
If each team plays all games, how many games will be played? ☐

Mastery Checklist

I can:
- ☐ write and solve division algorithms
- ☐ use number facts and mental strategies to divide
- ☐ use multiplication to check division answers
- ☐ estimate answers to division questions



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Number Operations: Dividing up to four-digit whole numbers by a one-digit divisor; **Number** Number structures: Rounding can support predicting or estimating the result of a calculation; **Algebra** Equations and relationships: Checking the truth of number sentences

Read, Plan, Think, Do



1 A Great White shark grew 180 cm in 6 years.
How many centimetres did it grow each year?

Plan: What to find? _____

Think: Number sentence: _____

Answer: _____

Do: Working

2 Five baby chimps weigh 45 kilograms together.
How many kilograms does each baby chimp weigh?



Plan: What to find? _____

Think: Number sentence: _____

Answer: _____

Do: Working

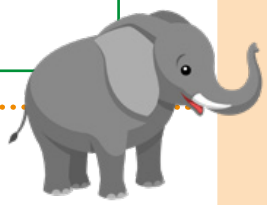
3 Every four years from age 14 to age 50, a female elephant may have a calf.
How many calves could it have in its lifetime?

Plan: What to find? _____

Think: Number sentence: _____

Answer: _____

Do: Working



4 Wolf packs are made up of about 6 wolves. If rangers counted 78 wolves from a helicopter, how many packs would that be?

Plan: What to find? _____

Think: Number sentence: _____

Answer: _____

Do: Working



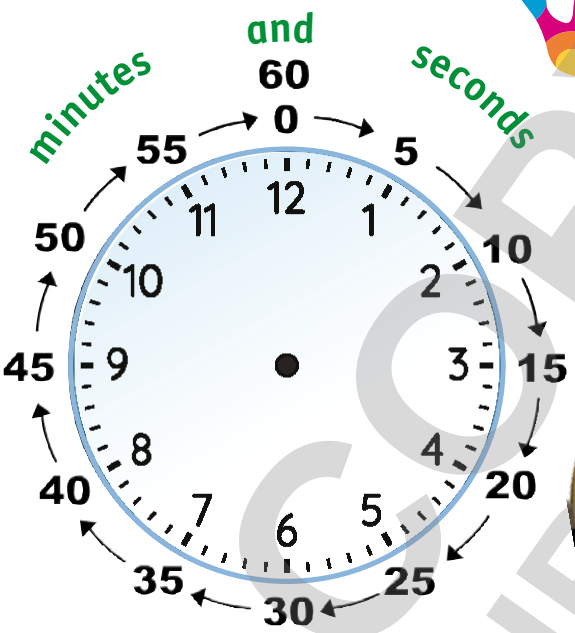
I can solve problems by:

☐ using division ☐ writing algorithms

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Seconds – time units based on 60

Clock hands
Short hand – hours
Long hand – minutes
Thin hand – seconds







60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week

1 Use your pencil to model a hand on the clock. Mark where the second hand will be at:
a 10 seconds. b 40 seconds. c 20 seconds. d 5 seconds. e 55 seconds.

2 Use two pencils to model:
a 5 min 30 sec. b 30 min 15 sec. c 50 min 20 sec.
d 10 min 45 sec. e 40 min 10 sec. f 35 min 50 sec.

3 How many minutes?
a 60 seconds _____ b 120 seconds _____ c 600 seconds _____

4 How many hours?
a 60 minutes _____ b 180 minutes _____ c 600 minutes _____

5 How many days?
a 24 hours _____ b 48 hours _____ c 240 hours _____

Use a table

Days	Hours	Minutes	Seconds
1	24	1,440	
2	48	2,880	
3	72	4,320	
4	96	5,760	

a Use a calculator to complete the seconds column.

b How many days in 259,200 seconds? _____

c How many hours in 86,400 seconds? _____

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Telling time

1 Match a clock to each time. Write the clock's letter.

A



B



C



D



E



F

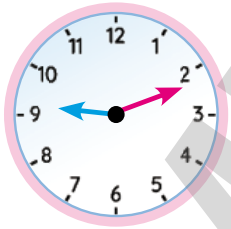


a 6 past 4 _____ **b** 6 to 3 _____ **c** 10 past 10 _____

d 25 past 2 _____ **e** 6 to 12 _____ **f** 20 to 5 _____

2 Talia takes photos of her clock throughout the day. Write the times.

a **am**



_____

b **am**



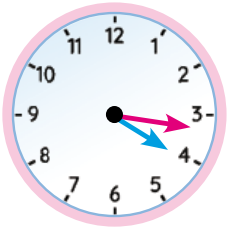
_____

c **pm**



_____

d **pm**



_____

e **pm**



_____

3 Tane glances at his watch throughout the day. Write am or pm beside each time. Write what Tane might be doing at each time.

a



_____

_____

b



_____

_____

c



_____

_____

d



_____

_____

e



_____

_____

f



_____

_____

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am or pm?

TERM 2
Week 8

1 Does each event happen in **am** or **pm** time?



a wake up _____ b bedtime _____

c homework _____ d breakfast _____

e sunset _____ f playtime _____

g lunch _____ h dinner _____

i fireworks _____ j dawn _____

2 Write the digital time. Add **am** or **pm** to each.

a 6 o'clock (morning) [:] _____ b $\frac{1}{2}$ past 4 (afternoon) [:] _____

c $\frac{1}{4}$ to 12 (night) [:] _____ d 27 past 6 (evening) [:] _____

e 4 past midday [:] _____ f 2 minutes past midnight [:] _____

3 Add 3 hours and 10 minutes to each time. Write **am** or **pm**.



a 6:24 am _____ b 11:45 am _____

c 1:41 pm _____ d 12:01 pm _____

e 11:01 am _____ f 9:18 pm _____

4 Order these times from earliest to latest.

3:25 pm | 4:40 am | 8:25 pm | 4:13 am

_____

5 Circle the longer time in each pair.

a 14 days | 3 weeks b 1 minute | 50 seconds

c 5 minutes | 200 seconds d 5 weeks | 2 months

Challenge!

Use a calculator to work out:

a how many hours in April. _____

b how many seconds in April. _____



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Measurement Measuring: Finding the duration of periods of time involving a.m. and p.m. notation; A point in time is typically measured in hours and minutes past midnight

Timetable

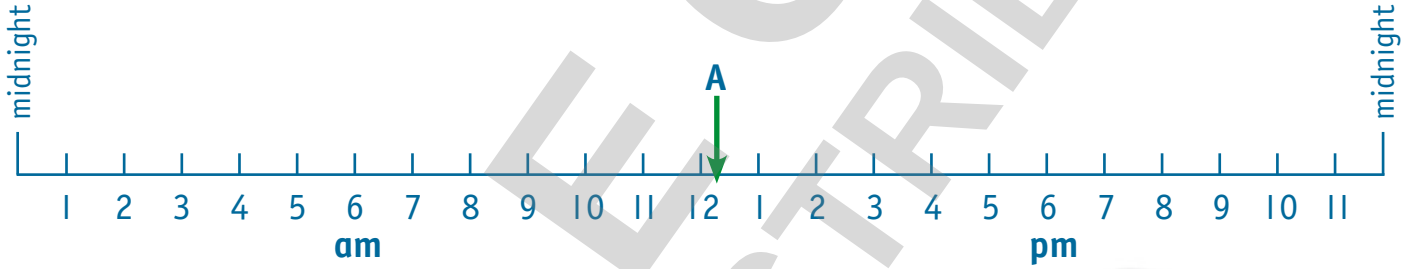
1

A	12:15 pm	lunch
B	8:25 am	arrive at school
C	9:40 pm	go to bed
D	1:55 pm	afternoon sport
E	10:40 am	morning break
F	7:45 pm	watch television
G	7:20 am	wake up
H	5:05 pm	homework
I	7:55 am	breakfast
J	6:50 pm	dinner
K	3:40 pm	walk home

This is Tina's timetable for Monday.
She has not written it in order.

Use the timeline to help put her activities in order.





2 What is the length of time from:

a waking up to breakfast? _____

b arriving at school until morning break? _____

c lunch until she starts walking home? _____

d dinner until bedtime? _____



3 **a** How long after breakfast does Tina arrive at school? _____

b How long is lunch? _____

c How long is Tina's whole day? _____

4 Choose the best unit to measure:

a how long it is until the end of the month. _____

b the time it takes to blink. _____

c the length of a movie. _____

d how long it is until you are 15. _____

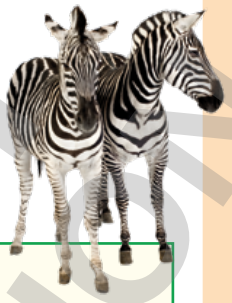
e the time from Easter to Christmas. _____

f the length of a school term. _____

seconds
minutes
hours
days
weeks
months
years

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Zoo photos



Photographers want to photograph the animals of Wanderound Zoo in the morning. The Keepers made a list of times that the animals are awake. Help the photographers plan their timetable.

Keepers report for work at 5 am. They don't want their photos taken.
The elephant likes to sleep in and does not wake until $\frac{1}{2}$ an hour after the zebra.
The kangaroo wakes $\frac{1}{2}$ an hour before the zebra.
The giraffes wake up at 7 am every morning, $\frac{1}{2}$ an hour after the elephant.
Tigers wake half an hour after 7 am. Koalas always sleep in, so they will be last.
Monkeys get angry if disturbed before the tigers. The lion wakes before the tigers.
Zebras don't smile until 15 minutes after they wake. The keepers' break is at 8:30 am.
Wombats can be woken at any time of the morning, especially for photographs.

Rough Working

Photographers' List in Order



Photographers start at _____ and end at _____.

I can solve problems by:

☐ making a list ☐ putting times into order

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Measuring time

TERM 2
Week 9

	Activity	Estimate	1st Try	2nd Try
a	Say the alphabet			
b	Count to 100			
c	Do 20 jumping jacks			
d				
e				
f				

Measure in pairs. You need a stopwatch

1 Fill in the list of Activities. There are 3 suggestions and 3 rows for your own ideas.

2 Estimate how long each activity will take.

3 Take turns and time one another for your first try.

4 Take turns and time one another for your second try. Were you faster?

5 Which time units did you use? _____

6 In seconds, write your fastest time for each activity.

a _____ b _____ c _____

d _____ e _____ f _____

7 Write them in minutes and seconds.

a _____ b _____ c _____

d _____ e _____ f _____

8 Now, write them rounded to the nearest minute.

a _____ b _____ c _____

d _____ e _____ f _____

9 Which activity took

a the longest? _____

b the shortest? _____

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Twenty-four hour time

TERM 2
Week 9



Coin Collecting
08:15



Face Painting
noon



Upholstery
09:45

24-hour time

In 24-hour time:

00:00 to 11:59
is from midnight to just before noon.

12:00 to 13:59
is from noon to just before midnight.



Banjo Playing
17:05



Bread Making 14:25



Pet Care
11:50



First Aid
10:20



Basket Weaving
20:05



Toy
Making
18:00



Vegetable Growing
16:10

The local Council is running a LEARN HOW weekend with free classes.
Each poster tells the time that the class will start. Each class lasts two hours.

1 Write the classes in order from earliest to latest.

a _____ b _____ c _____ d _____

e _____ f _____ g _____ h _____

i _____ j _____

2 Which classes start in the morning? _____

_____

3 Jim sleeps in and doesn't get up until 12:27.

Which is the first class he can attend? _____

4 a Tia wants to attend two classes after midday that are close together.

Which ones will she choose? _____

b Why? _____

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Measurement Measuring: Finding the duration of periods of time involving a.m. and p.m. notation and 24-hour time

Changing times

TERM 2
Week 9

Look at page 92.

am stands for ante meridiem which means before midday.
pm stands for post meridiem which means after midday.

1 Write all the start times in am or pm time from earliest to latest.

_____

_____

2 What time will these classes end? Use 24-hour time.

a Coin Collecting _____ b Face Painting _____ c Upholstery _____

d First Aid _____ e Banjo Playing _____ f Bread Making _____

g Pet Care _____ h Basket Weaving _____



3 If Mala attends Bread Making what is the next class she can attend? _____

4 Write these times using am or pm.

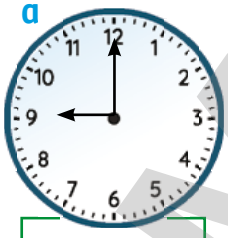
a 09:00 _____ b 14:00 _____ c 22:00 _____ d 13:00 _____

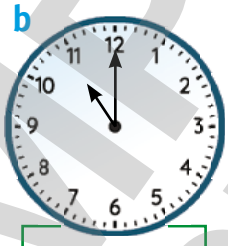
e 20:20 _____ f 23:40 _____ g 10:10 _____ h 16:15 _____

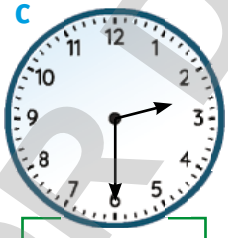


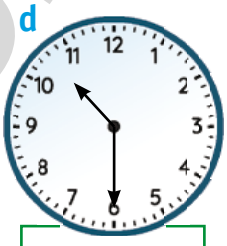
5 Write these times using 24-hour time.

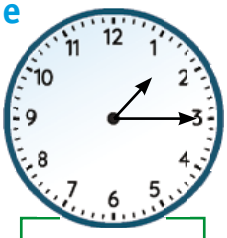
These are am times.

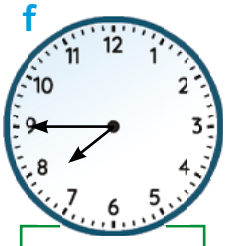
a  :

b  :

c  :

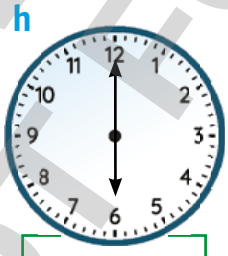
d  :

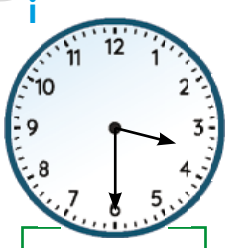
e  :

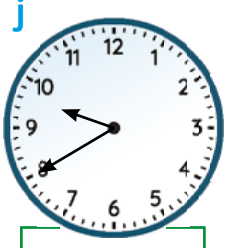
f  :

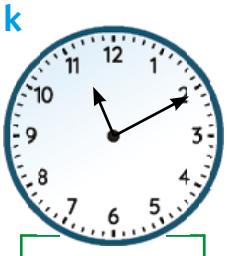
These are pm times.

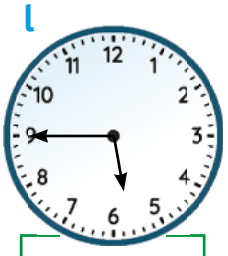
g  :

h  :

i  :

j  :

k  :

l  :

Mastery Checklist I can:
- ☐ measure duration with a timer
- ☐ convert between time units
- ☐ work with times in 24-hour and am/pm format

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Timetabling the carnival

Help Mrs Mato finish the timetable for the athletics carnival.
Each activity must be completed by all three classes: 5T, 5K and 5P.

Activities

- Game time
- 50-metre sprints
- 100-metre sprints
- 200-metre sprints
- Relays
- Shotput
- Discus
- Javelin
- Rest stop

Rules checklist:

- ☐ Everyone has lunch 12–1 pm.
- ☐ Everyone has break time 2:00–2:15 pm
- ☐ Everyone has Game time for 1 hour after lunch and before break time.
- ☐ All other activities take 30 minutes, and none can be done at the same time, not even rest stops.
- ☐ All sprints must be done by 10:30 am.
- ☐ Everyone has one 30-minute rest stop before noon.
- ☐ No shotput after break time.

Time	Class		
	5T	5K	5P
9:00–10:00 am	50 m sprints	200 m sprints	
	100 m sprints		200 m sprints
10:00–11:00 am	200 m sprints		
	Javelin	Rest stop	
11:00–12:00 noon	Shotput		
	Rest stop		
12:00–1:00 pm	Lunch		
1:00–2:00 pm	Game time		Game time
2:00–2:15 pm	Break time	Break time	
2:15–3:15 pm	Discus	Javelin	Relays
	Relays		

I can solve problems by:

☐ understanding time and duration of events ☐ guessing and checking

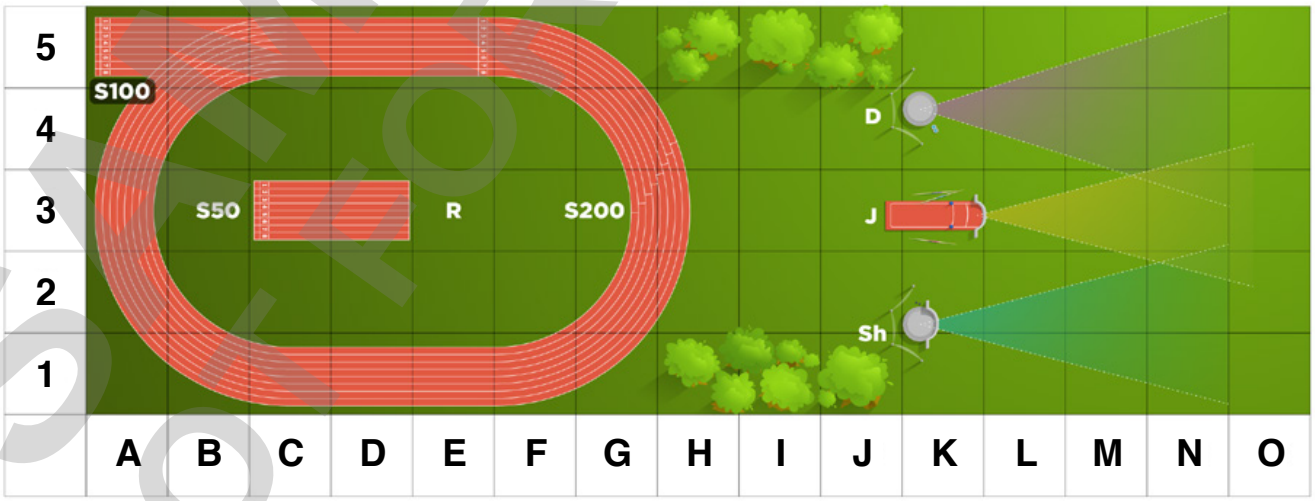
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Timetabling the carnival

The principal wants a detailed timetable in 24-hour time including the coordinates of the activities. Fill in the 24-hour timetable.

Use the map to list the coordinates for each activity.
Key: **S**prints, **R**elay, **Sh**otput, **D**iscus, **J**avelin.

Class 5K		
Start time	**Activity**	**Coordinates**
09:00	200 m sprints	G3
	Finish	



I can solve problems by:

☐ converting time to 24 hours ☐ finding coordinates on a grid map

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Checkpoint 4

1 a $3 \times 6 =$ _____ p 50-51

b $5 \times 7 =$ _____ c $6 \times 3 =$ _____

d $4 \times 9 =$ _____ e $10 \times 8 =$ _____

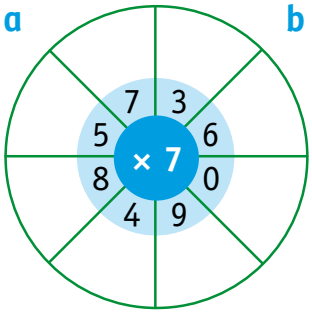
2 $14 \times 6 =$ _____ p 51

Show your working.

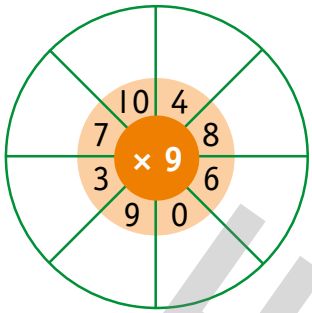
_____

3 Complete. p 52

a



b



4 Write all the factors of 24. p 53

_____

5 True or false? p 54

a 12 is a multiple of 4. _____

b 49 is a multiple of 9. _____

c 56 is a multiple of 7. _____

6 a Write 3 multiples of 12. p 56

_____ _____ _____

b Write 3 multiples of 8.

_____ _____ _____

7 How many in 8 boxes of: p 62

a 4 shirts? _____

b 8 shirts? _____

8 p 63

a $\begin{array}{r} 7 \\ \times\ 3 \\ \hline \\ \hline \end{array}$ b $\begin{array}{r} 8 \\ \times\ 6 \\ \hline \\ \hline \end{array}$ c $\begin{array}{r} 4 \\ \times\ 8 \\ \hline \\ \hline \end{array}$ d $\begin{array}{r} 9 \\ \times\ 7 \\ \hline \\ \hline \end{array}$

9 Write the next two terms. p 63

a 0·1, 1·2, 2·3, _____, _____

b 1,000, 100, 10, _____, _____

c 55·5, 45·5, 35·5, _____, _____

d 0·2, 2·0, 20, _____, _____

10 Write the rule. p 67

123,000, 234,000, 345,000

_____

11 Work out the rule and complete the pattern. p 68

a 14, 18, 22, _____ _____ _____ _____

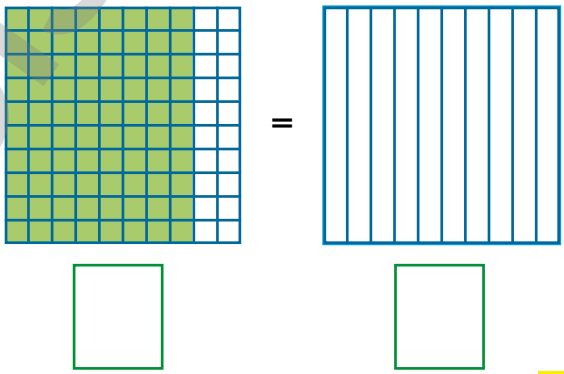
Rule _____

b 84, 73, 62, _____ _____ _____ _____

Rule _____

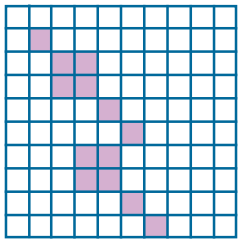
12 Colour the equivalent fraction. p 70

Write the hundredths and the tenths.



p 71

13 Write the fraction and the decimal.



$\frac{___}{100} = 0\cdot___$

p 72

14 Write the decimals in ascending order.

0·29, 0·15, 0·09, 0·31

_____

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Checkpoint 4

15 Match equivalent fractions by joining with a line. p 72

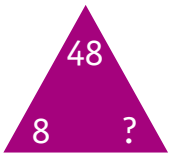
$\frac{5}{10}$	$\frac{10}{10}$
$\frac{3}{5}$	0·6
0·8	$\frac{80}{100}$
$\frac{90}{100}$	0·9
1·0	0·7
$\frac{70}{100}$	$\frac{1}{2}$

16 Complete. p 77

a ☐ ÷ 3 = 1 b 42 ÷ ☐ = 7

c 90 ÷ 9 = ☐ d ☐ ÷ 5 = 9

17 Write the × and ÷ facts. p 78



_____ × _____ = _____

_____ × _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

18 p 78

a $6\overline{)36}$ b $7\overline{)28}$ c $9\overline{)63}$

19 Follow the pattern. p 79

14 ÷ 2 = _____

140 ÷ 2 = _____

1,400 ÷ 2 = _____

20 Write two equal equations. p 80

2 × 12 = _____

= _____

21 The roller coaster holds 7 children. p 81

How many rides are needed for:

a 21 children? _____

b 49 children? _____

22 How many rides are needed for: p 82

a 30 children? _____

b 45 children? _____

23 Check your answers by multiplying. p 83

a $6\overline{)876}$

Check

b $5\overline{)940}$

Check

24 How many: p 86

a seconds in 3 minutes? _____

b minutes in 5 hours? _____

25 Write the am or pm times. p 88

a 6 in the morning _____

b 3 in the afternoon _____

26 Add 2 hours and 25 minutes to each time. p 88

a 10:13 am _____

b 9:55 pm _____

27 Circle the morning times. p 92

17:00 09:20 12:15 22:35

03:45 14:50 00:30 07:10

28 Write in 24-hour time. p 93

a 7:15 pm _____

b 3:42 am _____

29 Write in am or pm time. p 93

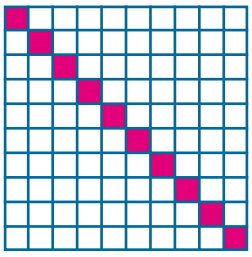
a 1128 _____

b 2210 _____

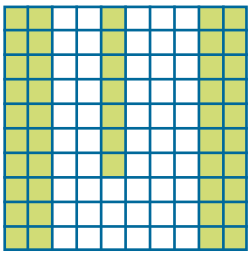
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Hundredths

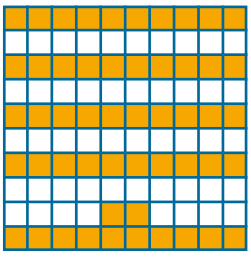
a



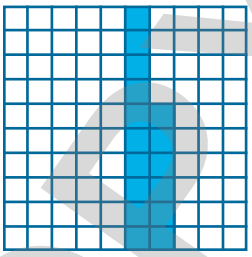
b



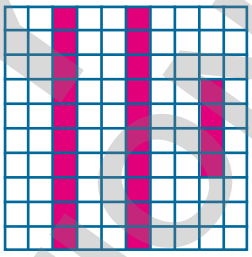
c



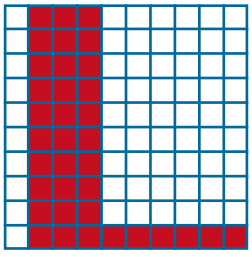
d



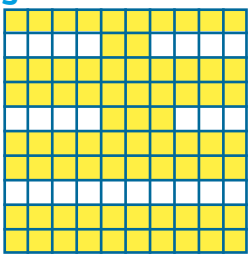
e



f



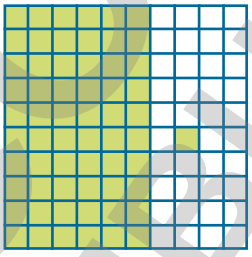
g



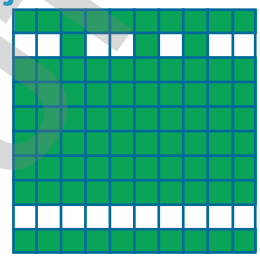
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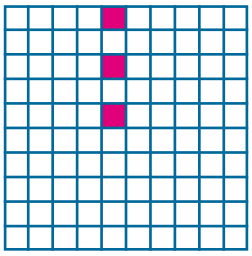
i



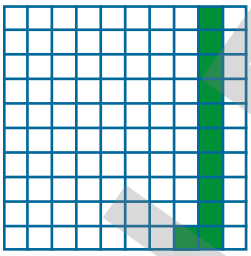
j



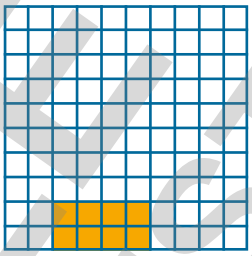
k



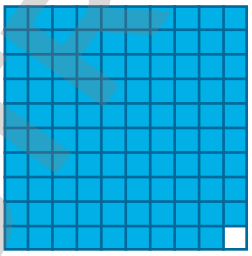
l



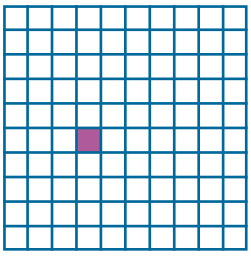
m



n



o



1 How many small squares in each grid? _____

2 Write the number of coloured squares as a fraction and a decimal.

a $\frac{10}{100}$ = 0.10

b $\frac{____}{100}$ = _____

c $\frac{____}{100}$ = _____

d $\frac{____}{100}$ = _____

e $\frac{____}{100}$ = _____

f $\frac{____}{100}$ = _____

g $\frac{____}{100}$ = _____

h $\frac{____}{100}$ = _____

i $\frac{____}{100}$ = _____

j $\frac{____}{100}$ = _____

k $\frac{____}{100}$ = _____

l $\frac{____}{100}$ = _____

m $\frac{____}{100}$ = _____

n $\frac{____}{100}$ = _____

o $\frac{____}{100}$ = _____

3 Write the decimals in ascending order.

_____

_____

4 Write: **a** the largest fraction. _____ **b** the smallest fraction. _____

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Percentages

Percent means out of 100.
5% is $\frac{5}{100}$
60% is $\frac{60}{100}$

1 Express each of the diagrams on page 98 as being 'out of 100' and as a percentage.

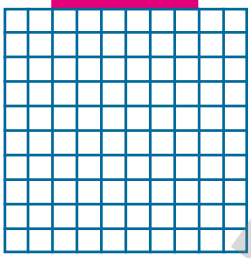
a _____ out of 100 = _____ %
b _____ out of 100 = _____ %
c _____ out of 100 = _____ %
d _____ out of 100 = _____ %
e _____ out of 100 = _____ %
f _____ out of 100 = _____ %
g _____ out of 100 = _____ %
h _____ out of 100 = _____ %
i _____ out of 100 = _____ %
j _____ out of 100 = _____ %
k _____ out of 100 = _____ %
l _____ out of 100 = _____ %
m _____ out of 100 = _____ %
n _____ out of 100 = _____ %
o _____ out of 100 = _____ %

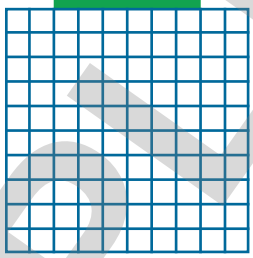
2 Write the percentages in descending order.

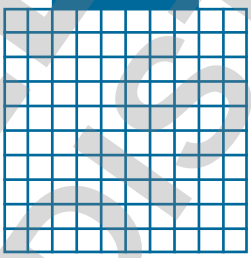
_____

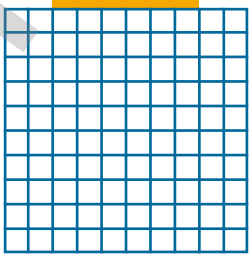
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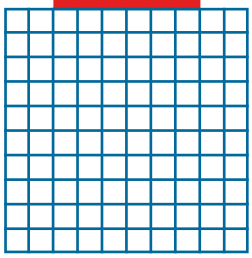
3 Colour to show:

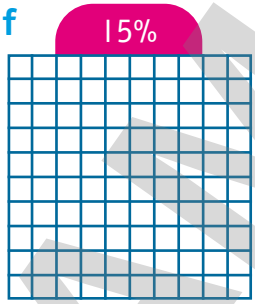
a 20%


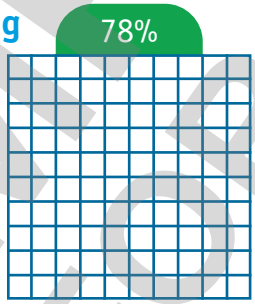
b 50%


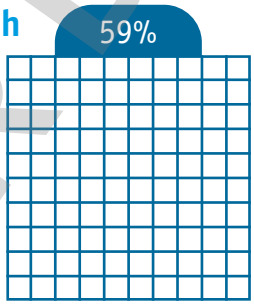
c 75%


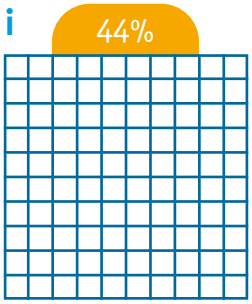
d 10%


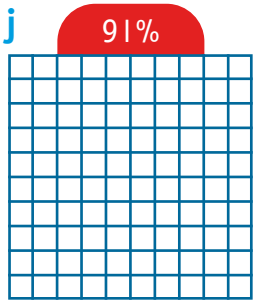
e 80%


f 15%


g 78%


h 59%


i 44%


j 91%


4 Write the percentages above as fractions over 100.

a ___/100 **b** ___/100 **c** ___/100 **d** ___/100 **e** ___/100

f ___/100 **g** ___/100 **h** ___/100 **i** ___/100 **j** ___/100

5 Write the percentages above as decimals.

a _____ **b** _____ **c** _____ **d** _____ **e** _____

f _____ **g** _____ **h** _____ **i** _____ **j** _____

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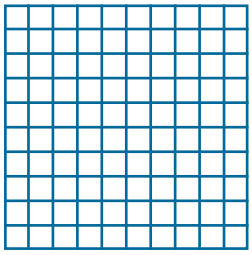
Fractions and percentages

Percent means out of 100.
35% means $\frac{35}{100}$

1 Fill in the diagrams to help you complete these.

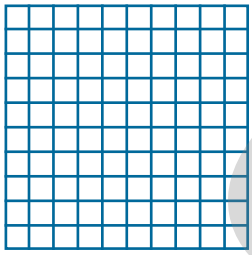
a

$\frac{1}{10} = \frac{\quad}{100} = _____\%$



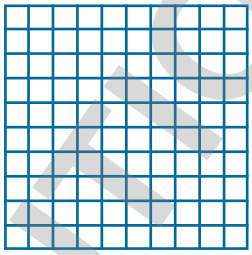
b

$\frac{3}{10} = \frac{\quad}{100} = _____\%$



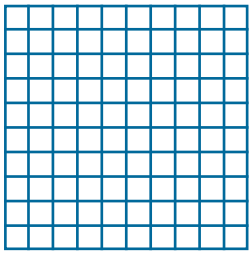
c

$\frac{7}{10} = \frac{\quad}{100} = _____\%$



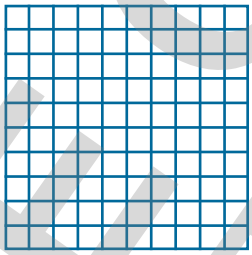
d

$\frac{1}{5} = \frac{\quad}{100} = _____\%$



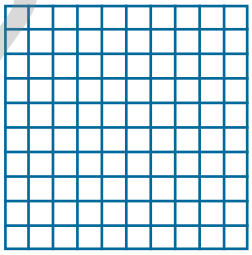
e

$\frac{2}{5} = \frac{\quad}{100} = _____\%$



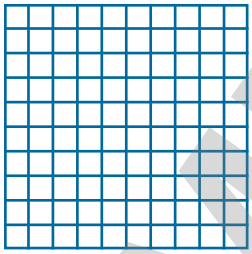
f

$\frac{3}{5} = \frac{\quad}{100} = _____\%$



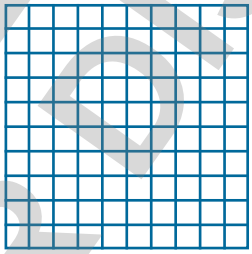
g

$\frac{1}{2} = \frac{\quad}{100} = _____\%$



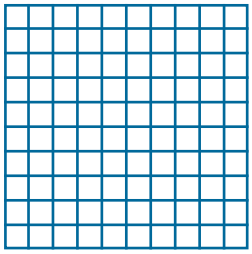
h

$\frac{1}{4} = \frac{\quad}{100} = _____\%$



i

$\frac{3}{4} = \frac{\quad}{100} = _____\%$



2 Match the fraction to its decimal and percentage.

$\frac{1}{2}$ $\frac{1}{10}$ $\frac{4}{10}$ $\frac{9}{10}$ $\frac{25}{100}$ $\frac{30}{100}$

0·1 0·9 0·5 0·4 0·3 0·25

40% 50% 90% 10% 25% 30%

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Number Rational numbers: Converting common percentages (10%, 25%, 50%) to fractions and decimals; Memorising and using decimal equivalents of ½, ¼, and ¾ and fractions with denominators 5 or 10 or 100

Everyday percentages

1 Fill in the table.

	Percent	Fraction	Fraction in lowest terms	Decimal
	50%	$\frac{50}{100}$	$\frac{1}{2}$	0.50
a	25%			
b	75%			
c	10%			
d	20%			

Lowest terms

To simplify a fraction, divide the numerator and denominator by the same number.

$\frac{50}{100} = \frac{50 \div 50}{100 \div 50} = \frac{1}{2}$

2 Draw and colour to show:

a 50% of an apple.	**b** 75% of a pizza.	**c** 10% of a chocolate bar.

3



Colour stars to show:

a 10% blue. **b** 25% red. **c** 50% green. **d** 10% yellow.

e How many are not coloured? _____ **f** What % is this? _____

4 Find:

a 75% of 1 hour = _____ minutes **b** 50% of 1 minute = _____ seconds

c 20% of $30 = _____ **d** 10% of 1 decade = _____ years

e 25% of 1 dozen = _____ **f** 75% of 1 year = _____ months

Challenge!

Item	Price	New price with 50% increase	New price with 25% increase	New price with 10% increase
a Shoes	$35			
b Shirt	$28			

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Percentages all around us

TERM 3
Week 1



Collect some advertising brochures and look for percentage amounts. Make a collage of six advertisements on this page.

Write a brief explanation for each one. e.g. 8% – this is the amount of interest you will pay each year on your loan from the Bixby Bank.

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Mastery Checklist

I can:
- ☐ connect fractions, decimals and percentages
- ☐ calculate percentages
- ☐ calculate % price increases
- ☐ understand real world percentages

Percentage off prices

TERM 3
Week 2

Ms Wu was having a garage sale. By lunchtime she hadn't sold much so she put up a sign.



To find 10%, **divide by 10**. Then **take** it **away**.

1 How much would these items cost now?

a the globe _____ b the white lamp _____ c the birdcage _____

d the vase _____ e the blue book _____ f the plant _____

Remember that **25% = $\frac{1}{4}$** so **divide by 4**. Then **take** it **away**.

2 How much would these items cost now?

a the red book _____ b the basketball _____ c the teddy bear _____

d the blue teapot _____ e the coffee pot _____

3 How much would these items cost now? Remember that **50% = $\frac{1}{2}$**.

a the picture _____ b the purple book _____ c the umbrella _____

d the stool _____ e the green lamp _____ f the dress _____

4 True or false? Jai says: 50% off a $20 item saves more money than 25% off a $40 item. Is Jai correct? Show your working.

_____

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Fractions of amounts

TERM 3
Week 2

Finding a fraction of a set is a division question. The denominator is the divisor.

What is $\frac{1}{4}$ of 20 kiwis?

20 ÷ 4 = 5

$\frac{1}{4}$ of 20 = 5



1 Work out the quantities.

a $\frac{1}{5}$ of 20 onions = _____ onions

b $\frac{1}{2}$ of 30 capsicums = _____ capsicums

c $\frac{1}{4}$ of 28 oranges = _____ oranges

d $\frac{1}{10}$ of 50 apples = _____ apples

e $\frac{1}{2}$ of 120 plums = _____ plums

f $\frac{1}{4}$ of 100 grapes = _____ grapes

g $\frac{1}{5}$ of 60 apricots = _____ apricots

h $\frac{1}{2}$ of 80 carrots = _____ carrots

i $\frac{1}{10}$ of 70 cucumbers = _____ cucumbers

j $\frac{1}{5}$ of 25 mangoes = _____ mangoes

k $\frac{1}{2}$ of 70 zucchinis = _____ zucchinis

l $\frac{1}{10}$ of 40 rockmelons = _____ rockmelons

m $\frac{1}{4}$ of 24 watermelons = _____ watermelons

n $\frac{1}{4}$ of 32 apples = _____ apples



To calculate a fraction of an amount, divide by the denominator, then multiply by the numerator.

What is $\frac{2}{3}$ of 21 tomatoes?

21 ÷ 3 = 7

7 × 2 = 14

$\frac{2}{3}$ of 21 tomatoes = 14

2 Calculate the following by dividing then multiplying.

a $\frac{1}{3}$ of 15 _____

b $\frac{2}{3}$ of 15 _____

c $\frac{1}{6}$ of 30 _____

d $\frac{5}{6}$ of 30 _____

e $\frac{1}{8}$ of 48 _____

f $\frac{3}{8}$ of 48 _____

g $\frac{5}{8}$ of 48 _____

h $\frac{7}{8}$ of 48 _____

i $\frac{9}{10}$ of 70 _____

j $\frac{5}{4}$ of 16 _____

k $\frac{3}{4}$ of 16 _____

l $\frac{1}{5}$ of 25 _____

3 $\frac{1}{3}$ of 60 children are late. $\frac{1}{6}$ of 60 children are early. How many were on time?

_____ late

_____ early

_____ on time



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Finding quantities

To find the total, divide the given amount by the numerator, then multiply by the denominator.

$\frac{3}{4}$ of _____ apples = 9 apples

$\frac{3}{4}$ = 9 9 ÷ 3 = 3 3 × 4 = 12 $\frac{3}{4}$ of 12 apples = 9 apples

1 Work out the quantities.

a $\frac{3}{5}$ of _____ sausages = 15 sausages

b $\frac{4}{10}$ of _____ bread rolls = 20 bread rolls

c $\frac{2}{5}$ of _____ onions = 8 onions

d $\frac{7}{10}$ of _____ zucchinis = 70 zucchinis

e $\frac{4}{5}$ of _____ capsicums = 8 capsicums

f $\frac{3}{10}$ of _____ olives = 18 olives

g $\frac{8}{10}$ of _____ salamis = 64 salamis

h $\frac{6}{10}$ of _____ pumpkins = 24 pumpkins

i $\frac{2}{10}$ of _____ grapefruit = 6 grapefruit



2 Find the totals.

a 5 pies are $\frac{1}{6}$ of the total. How many altogether? _____

b 12 bags are $\frac{1}{4}$ of the total. How many altogether? _____

c 9 bottles are $\frac{1}{3}$ of the total. How many altogether? _____

d 6 cakes are $\frac{1}{8}$ of the total. How many altogether? _____

e 4 plants are $\frac{1}{7}$ of the total. How many altogether? _____

f 10 oranges are $\frac{1}{6}$ of the total. How many altogether? _____

g 21 books are $\frac{7}{10}$ of the total. How many altogether? _____

h 32 balloons are $\frac{8}{9}$ of the total. How altogether? _____



3 Find the number.

a $\frac{3}{4}$ of a number is 18. What is the number? _____

b $\frac{6}{7}$ of a collection is 24. How many are in the collection? _____

c $\frac{8}{10}$ of a length is 64 cm. What is the total length? _____

d $\frac{5}{6}$ of a class is 30 students. How many students are in the class? _____

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Calculate the whole

An aquarium tank is 50% full with 9 litres in it.
How many litres does the whole tank hold?

$\frac{1}{2} = 9$ $9 \times 2 = 18$ **litres**

Tia is 25% through her hike after 5 kilometres.
How many kilometres is the whole hike?

$\frac{1}{4} = 5$ $5 \times 4 = 20$ **kilometre**

Remember:

$50\% = 0{\cdot}5 = \frac{5}{10} = \frac{1}{2}$

$25\% = 0{\cdot}25 = \frac{25}{100} = \frac{1}{4}$

1 Work out the whole amount.

a 50% is 7. The whole is _____

b 25% is 9. The whole is _____

c 25% is 12. The whole is _____

d 50% is 25. The whole is _____

2 Work out the whole amount then convert the units.

a 50% is 30 minutes. The whole is _____ minutes. The whole is a _____.

b 25% is 6 hours. The whole is _____ hours. The whole is a _____.

c 25% is 250 grams. The whole is _____ grams. The whole is a _____.

d 50% is 15 days. The whole is _____ days. The whole is a _____.

3 Find the whole amount.

a 50% of a rope is 18 metres. How long is the rope? _____

b 25% of a class is 8 students. How many students are in the class? _____

c 50% of a book is 120 pages. How many pages are in the book? _____

d 25% of a collection is 15 shells. How many shells are there altogether? _____

4 Complete the tables.

Part	Percentage	Whole
a 12	50%	
b 45	50%	
c 32	50%	

Part	Percentage	Whole
d 16	25%	
e 11	25%	
f 20	25%	

Mastery Checklist I can:

- ☐ find a percentage off a price
- ☐ find a fraction or percentage of a number
- ☐ find the whole amount given a percentage or fractional amount

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Changing amounts

1 Pam is looking at buying either 4 sets of 60 trading cards or 5 sets of 50 trading cards.

a Which set has more cards? _____

b The sets of 60 cards are $16 each and the sets of 50 cards are $15 each. Which is cheaper?

_____

c The seller says they can take 10% off the 60 card sets but they can take 20% off the sets of 50. Which is cheaper now?

_____

_____

2 Sam needs candles for his restaurant. He can buy 10 packs of 1,000 candles for $100 each pack. Or he can buy 1 pack of 10,000 candles for $1,200. To work out which is a better deal, calculate how many cents each candle is worth.

a $100 ÷ 1,000 candles: _____

1 candle = _____ cents

b $1,200 ÷ 10,000 candles: _____

1 candle = _____ cents

c Which is the better deal? _____

d If the packs of 10,000 candles go on sale for 10% off, which is the better deal now?

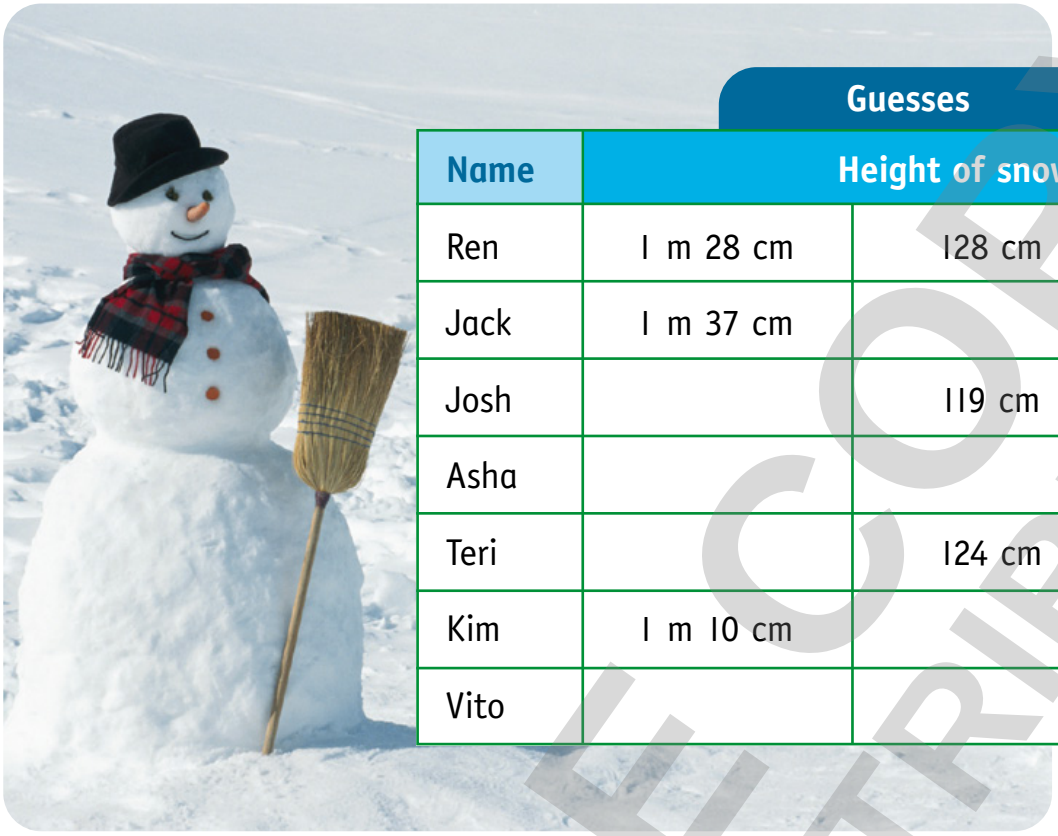
_____

I can solve problems by:

☐ calculating fractions and percentages of amounts ☐ writing equations

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Length



Guesses

Name	Height of snowman		
Ren	1 m 28 cm	128 cm	1·28 m
Jack	1 m 37 cm		
Josh		119 cm	
Asha			1·08 m
Teri		124 cm	
Kim	1 m 10 cm		
Vito			1·42 m

At the Winter Carnival there was a competition to guess the height of the snowman.

1 Complete the guessing chart.

2 Write the guesses in descending order using the numbers in the middle column.

_____

3 The snowman was 1 m 31 cm tall.

- a Whose guess was the closest? _____
- b How close was it? _____
- c Whose guess was the furthest away? _____

4 What is the difference in cm between the highest and lowest guesses? _____

5 Write your height three ways. _____ _____ _____

Challenge!

Using the internet, find the heights of the (a) tallest and (b) shortest man and woman. Write their heights two ways.

Man	a		b	
Woman	a		b	

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Length units

estimate and measure to check

1 Match each item to the unit of measurement you would use to find their length.



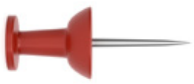





millimetres | centimetres | metres








2 Write as centimetres.

a 50 mm	_____	**b** 70 mm	_____	**c** 80 mm	_____
d 10 mm	_____	**e** 100 mm	_____	**f** 250 mm	_____
g 5 m	_____	**h** 8 m	_____	**i** 1 m	_____
j 4·85 m	_____	**k** 2·36 m	_____	**l** 1·5 m	_____

10 mm = 1 cm
100 cm = 1 m
1,000 mm = 1 m

23 mm = 2·3 cm
356 cm = 3·56 m
2·4 m = 2,400 mm

3 Write as metres.

a 300 cm	_____	**b** 800 cm	_____	**c** 700 cm	_____
d 400 cm	_____	**e** 200 cm	_____	**f** 1,000 mm	_____
g 3,000 mm	_____	**h** 9,000 mm	_____	**i** 6,000 mm	_____
j 500 mm	_____	**k** 2,300 mm	_____	**l** 842 cm	_____



4 Write as millimetres.

a 6 cm	_____	**b** 8·5 cm	_____	**c** 55 cm	_____
d 2 m	_____	**e** 4·7 m	_____	**f** 1·3 m	_____

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Length calculations

estimate and measure to check

metre m
centimetre cm
millimetre mm

1 Estimate in metres the:

a width of your classroom. _____

b height of the board. _____

c height of the classroom door. _____

d length of the classroom. _____

e width of the board. _____

Estimate in centimetres the:

f width of your desk. _____

g length of this book. _____

h length of your desk. _____

i height of a window. _____

Estimate in millimetres the:

j width of your pencil. _____

k length of your thumbnail. _____

l length of your pencil. _____

m width of this book. _____

2 With a partner, measure the above items.

a _____ b _____ c _____ d _____ e _____

f _____ g _____ h _____ i _____ j _____

k _____ l _____ m _____

3 Tick the answers that are close to your estimate.

4 Write number sentences to make these calculations.

a The length of two classrooms side-by-side. _____

b The height of 3 windows on top of each other. _____

c The width of four pencils in a row. _____

Perimeter is the distance around the outside. Add the lengths of all the sides.

P = 2 + 8 + 2 + 8
= 20 cm



5 Write number sentences for these calculations. What is the perimeter of:

a this book? _____

b your desk? _____

c the board? _____

d the classroom? _____

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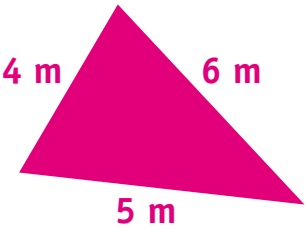
Measurement Measuring: Accurately measuring length with a ruler, using appropriate metric units or a combination of units; Converting metric units of length; Calculating the perimeters of 2D shapes with straight sides

Perimeter

TERM 3
Week 3

1 Find the perimeters of these polygons.

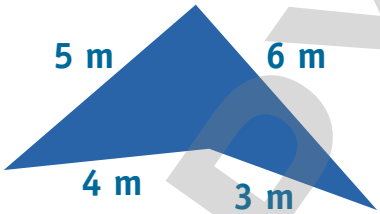
a



P = ☐ + ☐ + ☐

= ☐ m

b



P = ☐ + ☐ + ☐ + ☐

= ☐ m

Perimeter = add side lengths

2 Find the perimeter of these regular polygons.

a



P = ☐ + ☐ + ☐ + ☐

= ☐ cm

b



P = ☐ + ☐ + ☐ + ☐ + ☐ + ☐

= ☐ cm

A **regular polygon** has all sides and angles equal.

3 There is another way to calculate the perimeter of these regular shapes.

a P = 5 cm × ☐ = ☐ cm

b P = 2 cm × ☐ = ☐ cm

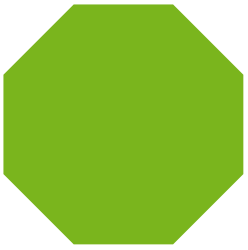
4 Calculate the perimeter of each regular polygon.

a



P = ☐ × ☐ = ☐ cm

b



P = ☐ × ☐ = ☐ cm

Mastery Checklist I can:

- ☐ record lengths in metres and centimetres in different ways
- ☐ estimate lengths
- ☐ measure using mm, cm and m
- ☐ add to find perimeters

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Measurement: Perimeter

1 Choose a section of the school to measure: _____

2 How will you measure the perimeter? Which tools will you use?

_____

_____

3 Sketch the shape of the section.

4 Estimate the perimeter. _____

5 Measure each side and write the measurement onto your sketch.

6 Add to find the perimeter.

_____

7 Was your estimate close to the measurement? _____

8 Compare your measurements with others in your class. Why might they be different?

_____

_____

I can investigate by:

☐ measuring lengths ☐ calculating perimeter ☐ drawing a diagram

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Measurement Measuring: Accurately measuring length with a ruler, using appropriate metric units or a combination of units; Calculating the perimeters of regular polygons and other 2D shapes with straight sides

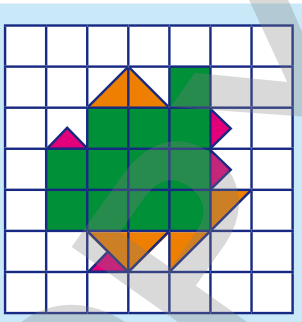
Finding the area of irregular shapes

TERM 3
Week 4

Estimating area

Area measures the amount of space a shape covers.
Sometimes shapes do not fit exactly onto a grid.
To estimate the area:

- **Count each whole square as 1 square unit.**
- **Count two half squares as 1 square unit.**
- **Combine partial squares where possible.**



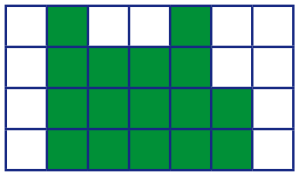
12 whole squares
6 half squares
4 partial squares

Estimate: 16 square units

Remember:
An estimate is not an exact answer.

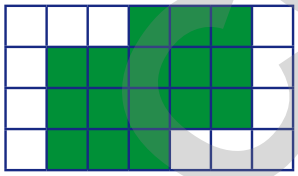
1 Find the area of each shape.

a



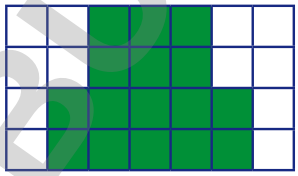
_____ square units

b



_____ square units

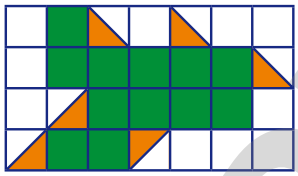
c



_____ square units

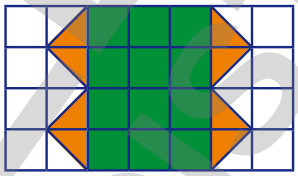
2 Find the area. Make sure to count half squares.

a



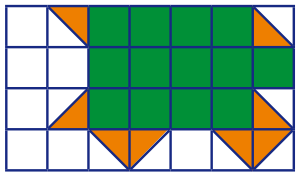
Whole squares = _____
Half squares = _____
_____ square units

b



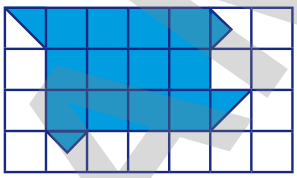
Whole squares = _____
Half squares = _____
_____ square units

c

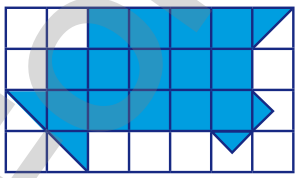


Whole squares = _____
Half squares = _____
_____ square units

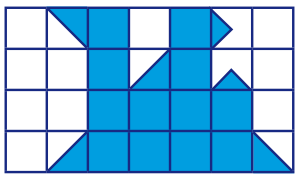
A



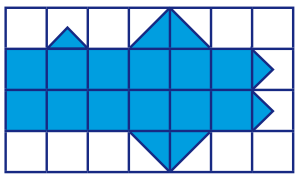
B



C



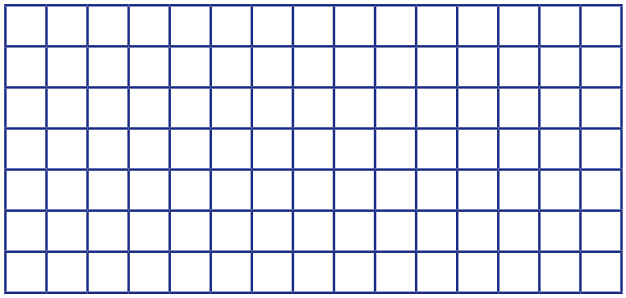
D



3 Estimate the area before counting.

Shape	Estimate	Actual Area
A		
B		
C		
D		

4 Draw an irregular shape with an area of approximately 25 square units.



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Finding the area of a rectangle

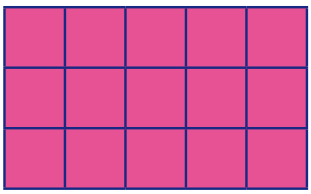


Area = length by width
Area = 8 × 4
Area = 32 cm²



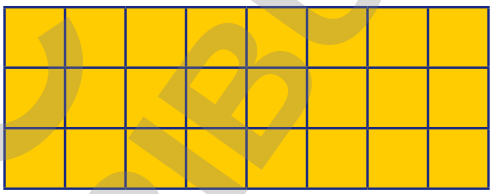
1 Find the area.

a



Area = _____ square units

b



Area = _____ square units

2 Use multiplication to find the area of each rectangle.

a Length = 8 cm
Width = 5 cm
Area = _____ cm²

b Length = 12 cm
Width = 4 cm
Area = _____ cm²

c Length = 15 cm
Width = 6 cm
Area = _____ cm²

d Length = 20 cm
Width = 7 cm
Area = _____ cm²

3 Complete the table.

Length	Width	Area
7	4	
8	8	
9	5	
12	7	
15	8	

4 Compare the rectangles.

A 8 × 5

B 12 × 4

Which rectangle has the greater area? _____

Show your working.

_____

_____

5 Design a garden. A gardener has 36 square paving stones. Design three different rectangular garden beds that use all 36 paving stones.

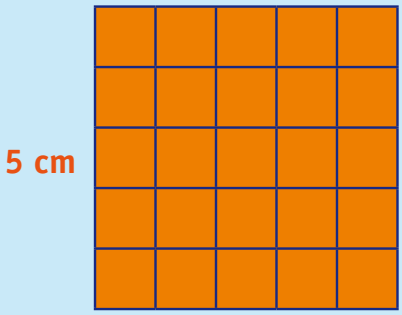
Length	Width	Area
		36
		36
		36

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Measurement Measuring: Approximating the areas of irregular shapes covered with squares, half squares, and partial squares; Calculating the areas of rectangles (including squares) using multiplication of side lengths

Finding the area of rectangles and squares

TERM 3
Week 4



Area = length by width
Area = 5 × 5
Area = 25 cm²

Remember:
Area is measured in square units such as cm².

1 Find the area of each rectangle.

a Length = 4 cm
Width = 6 cm
Area = _____ cm²

b Length = 6 cm
Width = 8 cm
Area = _____ cm²

c Length = 12 cm
Width = 5 cm
Area = _____ cm²

d Length = 6 cm
Width = 14 cm
Area = _____ cm²

2 Find the area of each square.

a Sides = 9 cm
Area = _____ cm²

b Sides = 11 cm
Area = _____ cm²

c Sides = 12 cm
Area = _____ cm²

d Sides = 15 cm
Area = _____ cm²

3 Find the missing side length.

a Area = 48 cm²
Width = 6 cm
Length = _____

b Area = 72 cm²
Width = 8 cm
Length = _____

c Area = 96 cm²
Width = 12 cm
Length = _____

d Area = 144 cm²
Width = 9 cm
Length = _____

4 Circle all rectangles with an area of 60 square units.

5 × 12 6 × 10 4 × 15
3 × 20 8 × 8 7 × 9

5 Circle all rectangles with an area of 72 square units.

8 × 9 ☐6 × 12 ☐4 × 18
☐ 5 × 14 ☐3 × 24 ☐10 × 7

6 **a** A painting is 60 cm long and 50 cm wide. What is the area of the painting?

Area = _____ cm²



b A doormat is 120 cm long and 90 cm wide. What is the area of the doormat?

Area = _____ cm²



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Area and perimeter

TERM 3
Week 4

1 Find the area and perimeter. Complete the table.

	Rectangle	Area	Perimeter
a	6 × 4 cm		
b	8 × 3 cm		
c	12 × 2 cm		
d	5 × 5 cm		
e	10 × 4 cm		

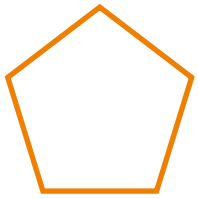
Area and perimeter are different measurements

Area measures the space inside a shape and is measured in square units, e.g. cm².

Perimeter measures the distance around a shape.

2 Calculate the perimeter of each regular polygon.

a



Name: _____

Side length = 5 cm

Perimeter = _____cm

b

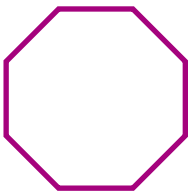


Name: _____

Side length = 8 cm

Perimeter = _____cm

c



Name: _____

Side length = 6 cm

Perimeter = _____ cm

d



Name: _____

Side length = 4 cm

Perimeter = _____ cm

3 Calculate the area and perimeter of each rectangle.

a 5 × 6

Area = _____

Perimeter = _____

b 3 × 10

Area = _____

Perimeter = _____

c 4 × 12

Area = _____

Perimeter = _____

d Which rectangles have the same area? _____

e Which rectangle has the smallest perimeter? _____

Mastery Checklist

I can:
- ☐ estimate and calculate the area of shapes using square units
- ☐ calculate the area of rectangles and squares using multiplication
- ☐ calculate the perimeter of regular polygons and other shapes with straight sides
- ☐ explain how shapes can have the same area but different perimeters, or the same perimeter but different areas

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Measurement Measuring: Calculating the areas of rectangles (including squares) using multiplication of side lengths; Calculating the perimeters of regular polygons and other 2D shapes with straight sides; Recognising that shapes with the same area can have different perimeters, and vice versa

Measurement: Perimeter and area

Look back at your first measurement investigation on page 112.

1 What was the section of the school measured? _____

2 Redraw the section. Write the side lengths and the perimeter.

3 Estimate the area. _____

4 How will you calculate the area? Do you need to divide it into parts?

_____

_____

5 Calculate the area.

_____

6 How close was your estimate? _____

_____

7 Explain how calculating the perimeter first helped with calculating the area.

_____

_____

I can investigate by:

☐ drawing a diagram ☐ calculating area ☐ relating area and perimeter

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Multiplying two-digit numbers

1 Complete the patterns.

a $3 \times 4 =$ _____
$30 \times 4 =$ 120
$300 \times 4 =$ 1,200

b $7 \times 6 =$ _____
$70 \times 6 =$ _____
$700 \times 6 =$ _____

c $9 \times 5 =$ _____
$9 \times 50 =$ _____
$9 \times 500 =$ _____

d $8 \times 8 =$ _____
$8 \times 80 =$ _____
$8 \times 800 =$ _____

2

a	H	T	O
	3	0	0
×			3

b	H	T	O
	4	0	0
×			2

c	H	T	O
	8	0	0
×			1

d	H	T	O
	2	0	0
×			3

e	H	T	O
	2	0	0
×			4

3

a

H	T	O	
	3	6	
×		2	
			← 2 × 6
+			← 2 × 30
			← 2 × 36

b

H	T	O	
	4	3	
×		5	
			← 5 × 3
+			← 5 × 40
			← 5 × 43

H	T	O	
	3	1	
×		7	
		7	← 7 × 1
	2	1	0 ← 7 × 30
	2	1	7 ← 7 × 31

c

H	T	O	
	6	4	
×		6	
			← 6 × 4
			← 6 × 60
			← 6 × 64

d

H	T	O	
	7	4	
×		3	
			← 3 × 4
			← 3 × 70
			← 3 × 74

e

H	T	O	
	5	2	
×		7	
			← 7 × 2
			← 7 × 50
			← 7 × 52

f	H	T	O
	4	6	
×		8	

g	H	T	O
		5	7
×			7

h	H	T	O
		9	4
×			9

i	H	T	O
	6	9	
×			5

j	H	T	O
		7	4
×			6

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Extended multiplication

1 a

H	T	O
	2	3	7
×			3
+			

3 × 7
3 × 30
3 × 200

b

H	T	O
	1	5	8
×			6
+			

6 × 8
6 × 50
6 × 100

H	T	O	
1	6	4	
×		6	
	2	4	6 × 4
3	6	0	6 × 60
6	0	0	6 × 100
9	8	4	

c

H	T	O
	2	7	5
×			4

d

H	T	O
	1	9	7
×			5

e

H	T	O
	3	8	9
×			2

f

H	T	O
	1	6	7
×			4

g

H	T	O
	1	3	8
×			8

h

H	T	O
	3	1	9
×			3

i

H	T	O
	1	7	8
×			7

j

H	T	O
	2	9	0
×			3

2 Write an algorithm to solve this problem.
There were 126 cows in each of 7 paddocks.
How many cows altogether? ☐



Trial and error

Use a calculator. Which numbers, when squared give these answers?

a 729 ☐ **b** 1,444 ☐ **c** 2,809 ☐



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Shortened multiplication

TERM 3
Week 5

Multiply one column at a time.

1 **Multiply** the **ones**. 7 × 5 = 35
2 **Write** the **ones** digit.
3 **Regroup** the **tens** above the **next** column.
5 Continue until all columns have been **multiplied**.

	H	T	O
	+4	+3	
	3	6	5
×			7
2	5	5	5

1 a

	H	T	O
	+	+	
	4	1	9
×			6

b

	Th	H	T	O
	+	+	+	
	1	7	2	8
×				5

c

	Th	H	T	O
	+	+	+	
		2	8	7
×				4

d

	Th	H	T	O
	+	+	+	
	1	4	6	8
×				3

2 a

	H	T	O
	3	8	4
×			9

b

	H	T	O
	9	5	2
×			4

c

	H	T	O
	7	6	1
×			8

3 a

	Th	H	T	O
	1	9	3	7
×				5

b

	Th	H	T	O
	1	8	0	6
×				4

c

	Th	H	T	O
	1	2	5	7
×				3

4 a

	Th	H	T	O
	8	3	9	5
×				6

b

	Th	H	T	O
	4	7	2	6
×				7

c

	Th	H	T	O
	1	3	4	9
×				8

5 Without calculating exactly, estimate.

4,982 × 7 ≈ _____

Is the answer closer to:

☐ 30,000 ☐ 35,000 ☐ 40,000

Explain your thinking.

_____

_____

_____

Challenge!

A number multiplied by 8 gives an answer between 4,000 and 5,000. What could the number be? Give three possible answers.

1 _____

2 _____

3 _____

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Number Operations: Multiplying three-digit and four-digit numbers by a one-digit number; Applying number facts to multiply; Standard written algorithms for multiplication rely on place value, regrouping, and renaming

Multiplying with kiwis

1 If a kiwi bird eats 275 worms every night, how many worms does one kiwi eat in a week?

Plan: What to find? _____

Think: Number sentence: _____

Do: Working _____

× _____

_____

Answer sentence:

_____



2 If each kiwifruit contains 1,579 seeds, how many seeds in eight kiwifruits?

Plan: What to find? _____

Think: Number sentence: _____

Do: Working _____

× _____

_____

Answer sentence:

_____



3 If each town has 9,842 people, how many people in five towns?

Plan: What to find? _____

Think: Number sentence: _____

Do: Working _____

× _____

_____

Answer sentence:

_____



I can solve multiplication problems by:

☐ using plan, think, do ☐☐ using a written method to multiply

☐☐ writing an answer sentence

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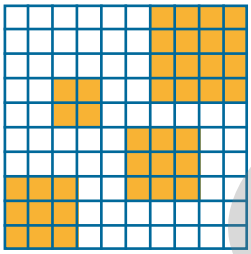
Checkpoint 5

1 Shade one bubble.

63% = ?

$6\frac{3}{10}$ ○ 16 ○ $\frac{63}{100}$ ○ $\frac{6}{10}$ ○

2



$\frac{38}{100}$ = _____

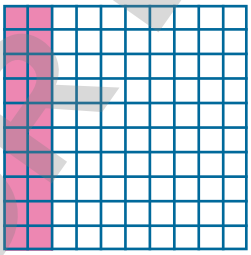
0·36 ○ 0·30 ○ 0·39 ○ 0·38 ○

3 What is the new price?



$16 ○ $8 ○ $12 ○ $12.80 ○

4 This diagram is showing:



2% ○ 2·2% ○ 20% ○ 200% ○

5 $\frac{1}{3}$ of 30 children are late. $\frac{1}{6}$ of 30 children are away.
How many were on time?

20 ○ 14 ○ 25 ○ 15 ○

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Checkpoint 5

Shade one bubble.

6 Find the area of the rectangle.



82 cm² ○ 86 cm² ○ 46 cm² ○ 48 cm² ○

7 What is the perimeter of the rectangle in question 6?

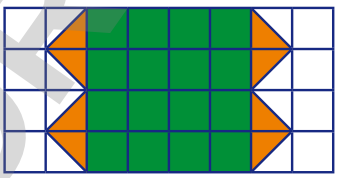
96 cm ○ 40 cm ○ 32 cm ○ 38 cm ○

8

Th	H	T	O
4	8	0	6
×			5

44,025 ○ 20,030 ○ 24,030 ○ 24,000 ○

9 What is the area of this shape?



16 squares ○ 20 squares ○ 18 squares ○ 22 squares ○

10 **a**

H	T	O
3	6	5
×		7

b

H	T	O
7	3	9
×		6

Write your answer.

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Teen times tables

1 Do you know your 11 and 12 times tables?

	×	1	2	3	4	5	6	7	8	9	10
a	11										
b	12										

2 Calculate the 13 times table.

a	1 × 10 = 10	1 × 3 = 3	1 × 13 =	10	+ 3	=
b	2 × 10 = 20	2 × 3 = 6	2 × 13 =		+	=
c	3 × 10 =	3 × 3 =	3 × 13 =		+	=
d	4 × 10 =	4 × 3 =	4 × 13 =		+	=
e	5 × 10 =	5 × 3 =	5 × 13 =		+	=
f	6 × 10 =	6 × 3 =	6 × 13 =		+	=
g	7 × 10 =	7 × 3 =	7 × 13 =		+	=
h	8 × 10 =	8 × 3 =	8 × 13 =		+	=
i	9 × 10 =	9 × 3 =	9 × 13 =		+	=
j	10 × 10 =	10 × 3 =	10 × 13 =		+	=

3 Calculate the answers to the rest of the teen times tables.

	×	1	2	3	4	5	6	7	8	9	10
a	15										
b	16										
c	17										
d	18										
e	19										

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Multiplication revision

TERM 3
Week 6

Some tricks

× 10 Each digit becomes 10 times larger.
16 × 10 = 160

× 2 double

× 4 double, double

× 8 double, double, double

× 5 ×10 then halve
16 × 5 = 160 ÷ 2

1 Work each one mentally. Then write how you did it.

a 16 × 8 = _____

b 82 × 5 = _____

c 62 × 20 = _____

d 106 × 4 = _____

e 78 × 20 = _____

2 This multiplication square contains mistakes.

a Circle each error.

×	7	4	8	6	9	0	5	3
8	54	30	64	48	78	8	45	28
4	28	16	24	24	34	0	20	12
7	49	28	56	46	62	7	37	20
3	23	10	32	20	27	0	15	6
9	61	36	72	54	81	0	45	12
6	40	26	46	34	15	6	35	16

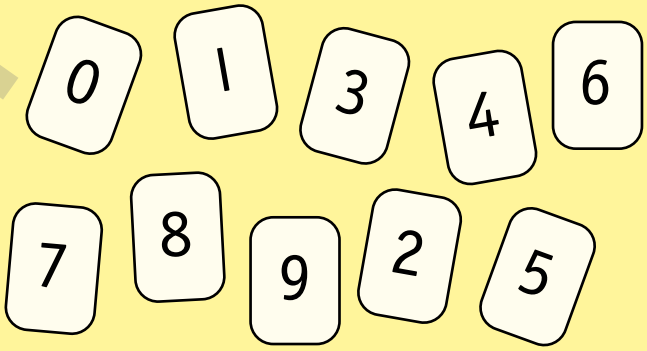


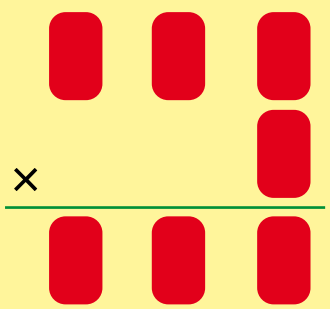
b How many were wrong? _____

c Fix the errors.

Challenge!

Use these digit cards to write eight different multiplications for the red cards.





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Area model or box method

1 Split by place value to multiply.

a $3 \times 24 = 3 \times (20 + 4)$

$3 \times$ _____	$3 \times$ _____

= _____ + _____

= _____

b $5 \times 32 = 5 \times$ (_____ + _____)

$5 \times$ _____	$5 \times$ _____

= _____ + _____

= _____

c 4×49 = _____ × (_____ + _____)

$4 \times$ _____	$4 \times$ _____

= _____ + _____

= _____

1 digit × 2 digit

1 **Split** the 2-digit number by place value.
$5 \times 19 = 5 \times (10 + 9)$

2 **Multiply** each part.
$5 \times 19 = (5 \times 10) + (5 \times 9)$

3 **Add** the products.
$5 \times 19 = 50 + 45$
$= 95$

2 digit × 2 digit

1 **Split**
54×22
$= (50 + 4) \times (20 + 2)$

2 **Multiply**
$50 \times 20 = 1{,}000$
$50 \times 2 = 100$
$4 \times 20 = 80$
$4 \times 2 = 8$

3 **Add**
$1{,}000 + 100 + 80 + 8$
$= 1{,}188$

2 Split by place value to multiply.

a $15 \times 27 = (10 + 5) \times (20 + 7)$

10×20 = _____	10×7 = _____
5×20 = _____	5×7 = _____

= _____ + _____ + _____ + _____

= _____

b $23 \times 38 = (20 + 3) \times (30 + 8)$

20×30 = _____	20×8 = _____
3×30 = _____	3×8 = _____

= _____ + _____ + _____ + _____

= _____

c 32×39 =

_____ × _____ = _____	_____ × _____ = _____
_____ × _____ = _____	_____ × _____ = _____

= _____ + _____ + _____ + _____

= _____

d 68×45 =

_____ × _____ = _____	_____ × _____ = _____
_____ × _____ = _____	_____ × _____ = _____

= _____ + _____ + _____ + _____

= _____

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Multiply 2 by 2 digits

TERM 3
Week 6

1 Split by place value to multiply.

a 73 × 14 = _____

____ × ____ = ____	____ × ____ = ____
____ × ____ = ____	____ × ____ = ____

_____

b 95 × 27 = _____

____ × ____ = ____	____ × ____ = ____
____ × ____ = ____	____ × ____ = ____

_____

c 48 × 36 = (_____ + _____) × (_____ + _____)

= _____ + _____ + _____ + _____

= _____

d 56 × 43 = (____ × ____) + (____ × ____) + (____ × ____) + (____ × ____)

= _____ + _____ + _____ + _____

= _____

Algorithm

1. **Multiply the top number by the ones digit of the bottom number.**
2. **Multiply the top number by the tens digit of the bottom number. Use 0 as a place holder in the ones column.**
3. **Add the answers.**

```
   +1   ← Trade the ten
    54    from 4 × 4 = 16
 ×  42
 -------
   108  ← 2 × 54
+ 2160  ← 40 × 54
 -------
  2268  ← 42 × 54
```

2 Use an algorithm to multiply.

a

```
   57
 × 24
 ----
      ← 4 × 57
 ----
+  0  ← 20 × 57
 ----
```

b

```
   92
 × 35
 ----
      ← 5 × 92
 ----
+  0  ← 30 × 92
 ----
```

c

```
   86
 × 43
 ----
      ← 3 × 86
 ----
+  0  ← 40 × 86
 ----
```

d

```
   63
 × 57
 ----
 ----
+
 ----
```

e

```
   46
 × 68
 ----
 ----
+
 ----
```

f

```
   79
 × 75
 ----
 ----
+
 ----
```

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Animal problems

Choose a strategy to solve each problem: equations, algorithm, area model or box method. Show your working.

1 There are about 1,875 pods of Hector's dolphins around New Zealand. If there are 8 dolphins in a pod, about how many Hector's dolphins are there around New Zealand?



Answer: _____

2 A fantail eats one insect every 3 minutes.

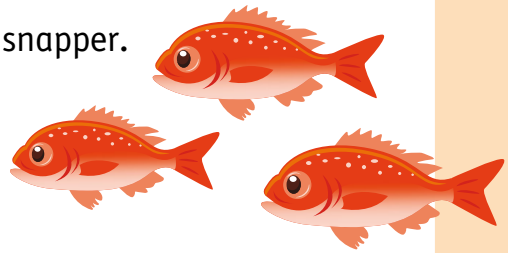
a How many times does it eat in an hour?

b How many insects does it eat in 9 hours?



Answer: _____

3 When fishing, you are allowed to catch a maximum of 15 snapper. If 56 people catch the maximum number of snapper each, how many snapper were caught altogether?



Answer: _____

I can solve problems by:

☐ choosing a strategy ☐ multiplying larger numbers

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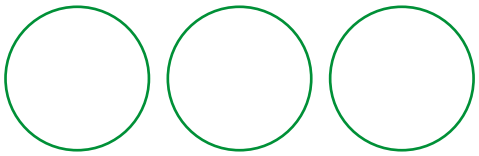
Remainders

When we divide, there may be some left over. The amount left over is called the remainder.
The remainder is written using r.

Share 13 apples equally between 4 baskets.
Four baskets each contain 3 apples.
One apple is left over.
13 ÷ 4 = 3 r 1



1 **a** Divide 19 between 3 groups.



19 ÷ 3 = ____ r ____

b Divide 23 between 5 groups.



23 ÷ 5 = ____ r ____

2 Complete each division.

a 16 ÷ 3 = ____ r ____
b 25 ÷ 4 = ____ r ____
c 29 ÷ 5 = ____ r ____
d 37 ÷ 6 = ____ r ____
e 41 ÷ 7 = ____ r ____
f 47 ÷ 10 = ____ r ____
g 38 ÷ 8 = ____ r ____
h 53 ÷ 5 = ____ r ____

3 Which remainder? Tick the correct answer.

a 18 ÷ 4
- ☐ r 0
- ☐ r 1
- ☐ r 2
- ☐ r 3

b 29 ÷ 5
- ☐ r 2
- ☐ r 3
- ☐ r 4
- ☐ r 5

c 31 ÷ 6
- ☐ r 0
- ☐ r 1
- ☐ r 5
- ☐ r 6

d 45 ÷ 4
- ☐ r 0
- ☐ r 1
- ☐ r 5
- ☐ r 6

4 Solve.

a 28 toy cars packed into boxes of 5.
How many full boxes?
How many cars left over?

_____

b 36 stickers shared equally between 5 children. How many stickers does each child get? How many stickers left over?

_____

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Area model

Quotient
The answer to a division problem.

TERM 3
Week 7

1 Complete the area models to find the quotient and remainder.

a 45 ÷ 4

÷ 4	44	1
	45	

44 ÷ 4 = ____

45 ÷ 4 = ____ r ____

b 58 ÷ 5

÷ 5	55	3
	58	

55 ÷ 5 = ____

58 ÷ 5 = ____ r ____

c 73 ÷ 6

÷ 6	72	1
	73	

72 ÷ 6 = ____

73 ÷ 6 = ____ r ____

d 86 ÷ 7

÷ 7	84	2
	86	

84 ÷ 7 = ____

86 ÷ 7 = ____ r ____

2 Use area models to solve.

a 47 ÷ 3 = _____

b 62 ÷ 4 = _____

c 71 ÷ 5 = _____

d 88 ÷ 6 = _____

e 95 ÷ 7 = _____

f 109 ÷ 8 = _____

3 Complete the table.

	Division	Largest multiple	Quotient	Remainder
a	53 ÷ 4	4 × =		
b	68 ÷ 5	5 × =		
c	79 ÷ 6	6 × =		
d	92 ÷ 7	7 × =		
e	103 ÷ 8	8 × =		

4 **a** 73 tennis balls are packed into tubes of 6. How many full tubes can be made? How many balls are left over?

_____

_____

b 95 stickers are shared equally among 7 students. How many stickers does each student get? How many stickers remain?

_____

_____

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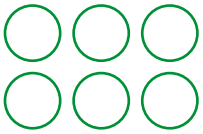
Number Operations: Division can be represented as grouping, sharing, or an area model and larger numbers can be divided using a standard written algorithm; Dividing up to four-digit whole numbers by a one-digit divisor, with a remainder

Understanding remainders

Remember:
The remainder is always smaller than the divisor.

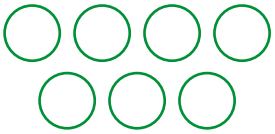
1 What number goes in each circle?

a 47 shared between 6 groups



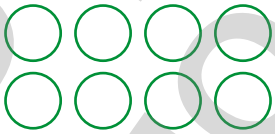
47 ÷ 6 = ____ r ____

b 58 shared between 7 groups



58 ÷ 7 = ____ r ____

c 69 shared between 8 groups



69 ÷ 8 = ____ r ____

2 Complete the equations to find the answer.

a 29 ÷ 4

4 × _____ = _____

_____ + _____ = 29

29 ÷ 4 = _____ r _____

b 73 ÷ 8

8 × _____ = _____

_____ + _____ = 73

73 ÷ 8 = _____ r _____

c 86 ÷ 9

9 × _____ = _____

_____ + _____ = 86

86 ÷ 9 = _____ r _____

3 Complete the area models.

a 41 ÷ 6



36 ÷ 6 = _____

41 ÷ 6 = _____ r _____

b 66 ÷ 7



_____

66 ÷ 7 = _____ r _____

c 53 ÷ 8



_____

53 ÷ 8 = _____ r _____

4 Which remainder?

a 47 ÷ 6

- ☐ ☐ 4
- ☐ ☐ 5
- ☐ ☐ 6

b 58 ÷ 7

- ☐ ☐ 1
- ☐ ☐ 2
- ☐ ☐ 3

c 73 ÷ 8

- ☐ ☐ 1
- ☐ ☐ 2
- ☐ ☐ 3

d 86 ÷ 9

- ☐ ☐ 4
- ☐ ☐ 5
- ☐ ☐ 6

5 **a** 47 muffins are packed into boxes of 6.
How many full boxes?
How many muffins are left over?

_____

_____

b 74 students are placed into teams of 9.
How many complete teams?
How many students are left over?

_____

_____

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Division algorithm

The division algorithm uses place value.
When we divide, we work from left to right.
We divide thousands, hundreds, tens and ones

Example

$648 \div 3 = 216$

$$\begin{array}{r} 216 \\ 3\overline{)648} \\ -\ 6 \\ \hline 04 \\ -\ 3 \\ \hline 18 \\ -\ 18 \\ \hline 0 \end{array}$$

You can check by using multiplication.
$216 \times 3 = 648$

1 Complete the algorithm.

a $2\overline{)432}$ **b** $3\overline{)636}$ **c** $4\overline{)848}$ **d** $3\overline{)963}$

2 Use the division algorithm.

a $564 \div 4$ **b** $735 \div 5$ **c** $864 \div 6$ **d** $936 \div 3$

3 Divide the 4-digit numbers. Show your working.

a $1{,}248 \div 4$ **b** $1{,}635 \div 5$ **c** $2{,}448 \div 6$ **d** $3{,}249 \div 3$

4 Check using multiplication.

a $248 \div 4 = 62$
Check:
$\square \times 4 = ____$

b $816 \div 8 = 102$
Check:
$\square \times 8 = ____$

c $1{,}635 \div 5 = 327$
Check:
$\square \times 5 = ____$

5 Spot the mistake.

a Tama solved:

$$\begin{array}{r} 213 \\ 3\overline{)639} \end{array}$$

Check his answer. Is it correct? _____
Explain. _____

b Mia solved:

$$\begin{array}{r} 154 \\ 4\overline{)642} \end{array}$$

Check her answer. Is it correct? _____
Explain. _____

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Number Operations: Division can be represented as grouping, sharing, or an area model and larger numbers can be divided using a standard written algorithm; Dividing up to four-digit whole numbers by a one-digit divisor, with a remainder

Division algorithm with remainders

TERM 3
Week 7

1 Complete the algorithm.

a $4 \overline{)145}$

b $5 \overline{)187}$

c $6 \overline{)254}$

d $7 \overline{)323}$

e $3 \overline{)527}$

f $6 \overline{)685}$

g $5 \overline{)749}$

h $7 \overline{)918}$

2 Use the division algorithm.

a 437 ÷ 8

b 562 ÷ 9

c 841 ÷ 6

d 953 ÷ 7

3 Divide the 4-digit numbers.

a 1,247 ÷ 3

b 2,586 ÷ 4

c 3,758 ÷ 6

d 4,895 ÷ 8

4 Complete the check. Use: Dividend = (Divisor × Quotient) + Remainder.

a 145 ÷ 4 = 36 r 1

Check: (4 × 36) + 1 = _____

b 323 ÷ 7 = 46 r 1

Check: (7 × 46) + 1 = _____

5 Find the mistake.

a $5 \overline{)297}$ 58 r 7

b $6 \overline{)370}$ 60 r 4

Mastery Checklist

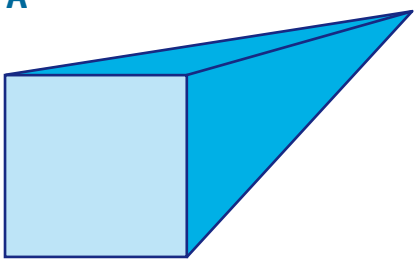
I can:
- ☐ represent and explain division using different models
- ☐ find quotients and remainders when dividing whole numbers
- ☐ use the division algorithm to divide 3-digit and 4-digit numbers
- ☐ check my answers and solve division problems

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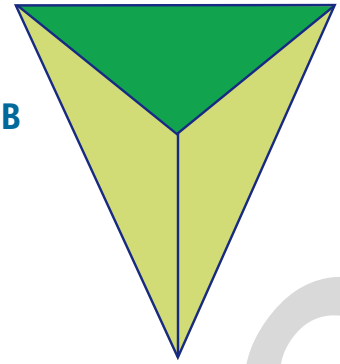
Prisms and pyramids

TERM 3
Week 8

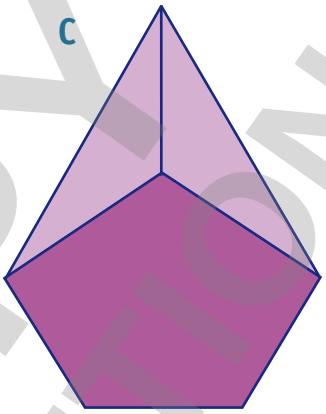
A



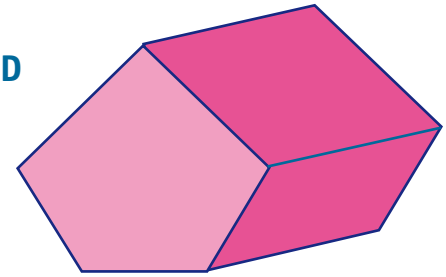
B



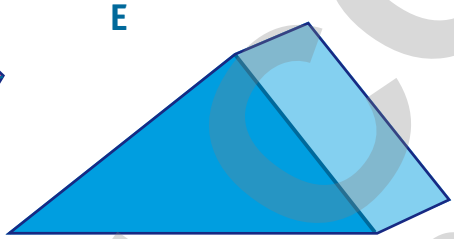
C



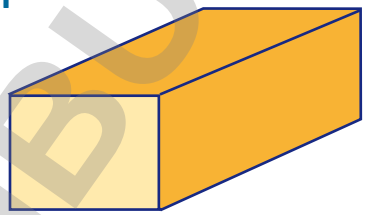
D



E



F



1 Name the shape of each end face (base).

A _____ B _____ C _____

D _____ E _____ F _____

2 What shape are all the other faces?

A _____ B _____ C _____

D _____ E _____ F _____

3 If a shape has an apex, circle it.

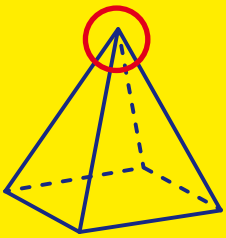
4 What are the differences between a pyramid and a prism?

_____

_____

_____

Apex

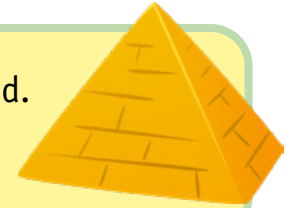


5 Name each 3D object.

A _____ B _____ C _____

D _____ E _____ F _____

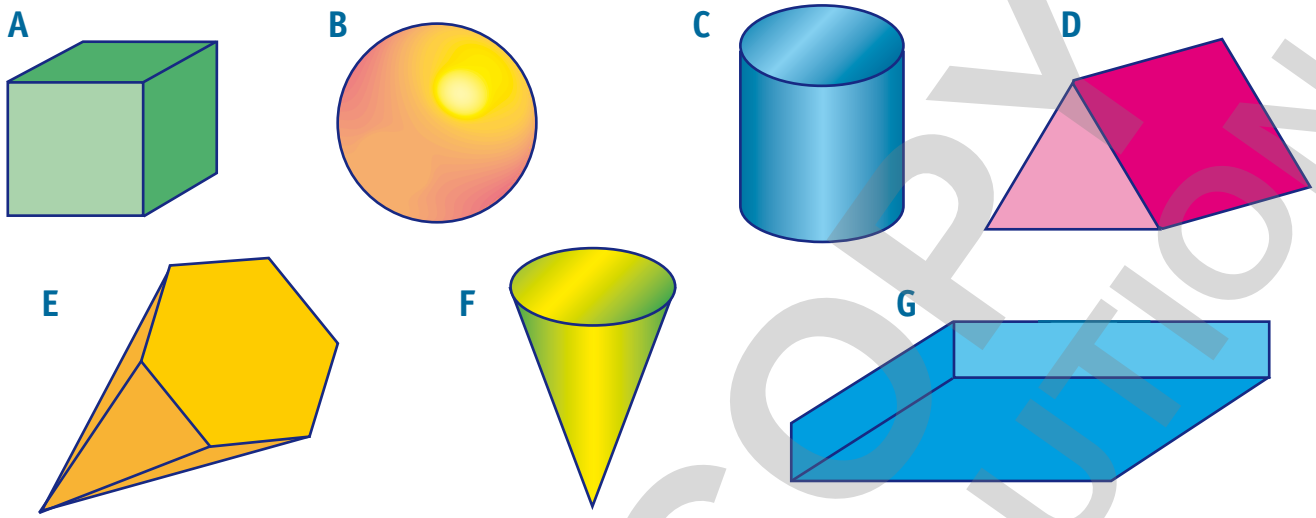
Challenge! Name 3 real world items that are shaped like a pyramid.



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Geometry Shapes: Identifying, classifying, and describing the attributes of prisms, using faces, edges, and vertices

3D shapes



1 Name each 3D shape.

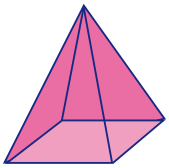
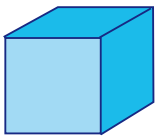
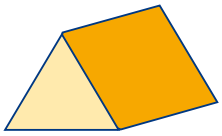
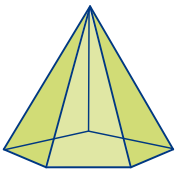
2 Describe the attributes of each 3D object. Consider: edges, vertices, flat faces, curved surfaces, apex, shapes of flat faces and bases.

	Name	Description
A	Cube	A cube has ...
B		
C		
D		
E		
F		
G		

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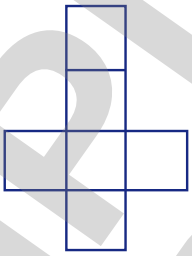
Nets

1 Draw each face of these 3D shapes.

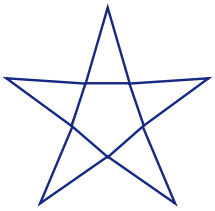
A 	
B 	
C 	
D 	

2 Match each 3D shape to a net. Label the nets **A**, **B**, **C**, **D**. Name the 3D shape they fold up into.

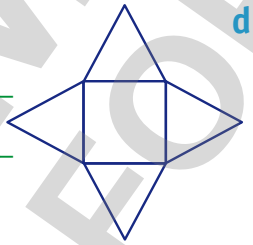
a _____



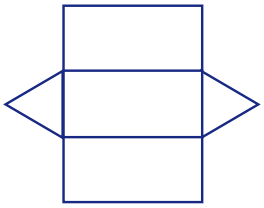
b _____



c _____

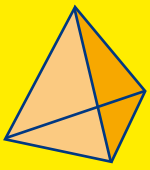


d _____

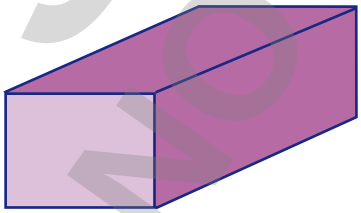


A **net** can be folded up to make a 3D object.





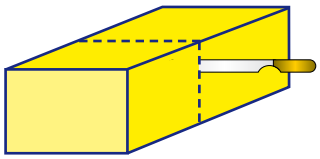
3 Draw the net.



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Cross-sections

A **cross-section** is the 2D shape you see when you cut through a 3D object.

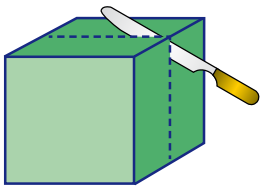




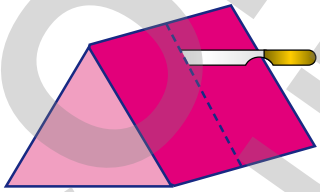
← **cross-section**

1 Draw the cross-sections.

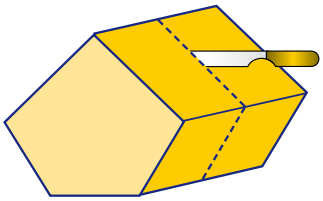
a



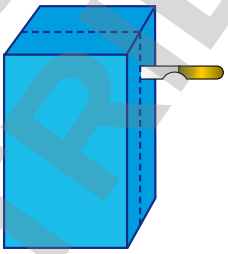
b



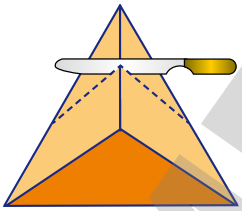
c



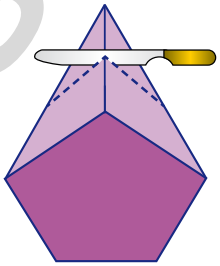
d



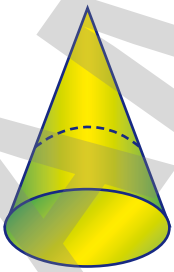
e



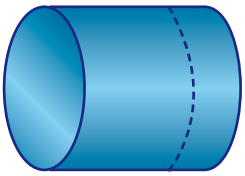
f



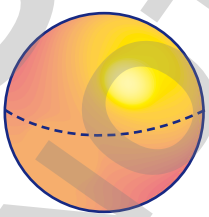
g



h



i



Mastery Checklist

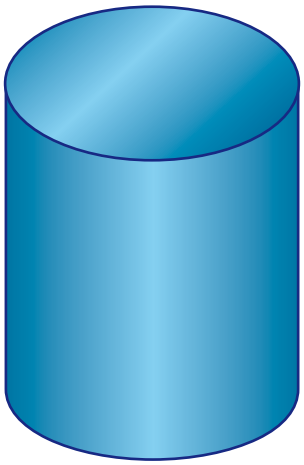
I can:

- ☐ identify and compare prisms and pyramids
- ☐ describe 3D objects by their attributes
- ☐ identify nets of 3D objects
- ☐ identify cross-sections of 3D objects

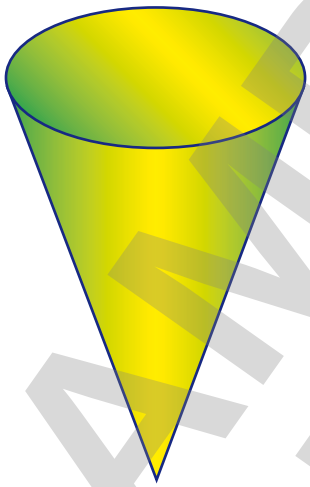
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Geometry: Curved 3D shapes

Ken thinks it's impossible to draw nets of 3D objects with curved surfaces.
Study solid models of a cylinder and a cone. Can you draw the nets?
Try making these shapes out of paper and tape. What shapes do you need?



Shapes used: _____



Shapes used: _____

Is Ken correct? _____ Describe what you discovered about the cylinder and the cone.

_____

I can investigate by:

☐ visualising 3D objects ☐ making a model ☐ drawing a diagram

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Likelihood

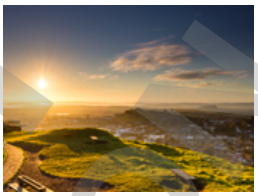
TERM 3
Week 9

1 Write *certain*, *possible* or *impossible*.

a The sky will be green tomorrow. _____

b The sun will rise in the morning. _____

c It will rain tonight. _____



2 Write *likely*, *unlikely* or *even chance*.

a It will snow tomorrow. _____

b It will be light at 7 am. _____

c A rolled die will land on 4. _____

d It will be dark by 7 pm. _____

e It will be hot tomorrow. _____

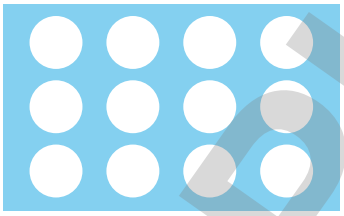
f A flipped coin will land on tails. _____



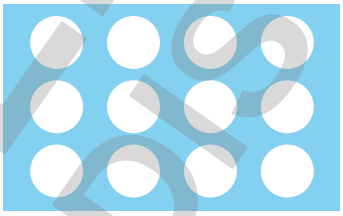


3 Colour these balls so that:

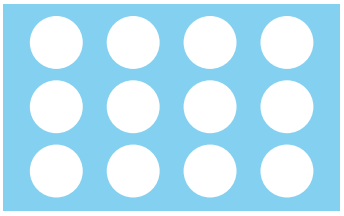
a there is an *even chance* of pulling red or blue.



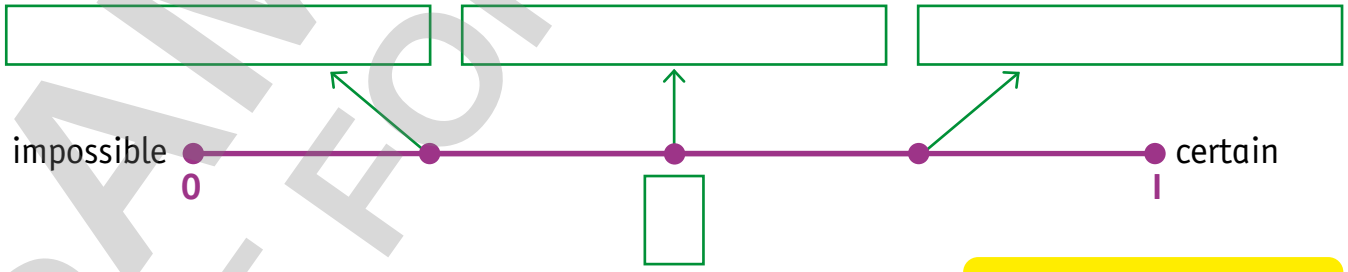
b you are *certain* to pull green.



c pulling pink is *unlikely* and pulling purple is *likely*.



4 Write these words in order of certainty on the probability line: *likely*, *unlikely* and *even chance*.



5 What fraction is an even chance? Write it in the box.

6 Write *likely* and *unlikely* with their range of probability.

a More than 0 and less than $\frac{1}{2}$. _____

b Less than 1 and more than $\frac{1}{2}$. _____

Probability is the chance of something happening.

Probability can be represented with fractions on a line.

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Probability

TERM 3
Week 9

The different ways a thing can happen are called outcomes.

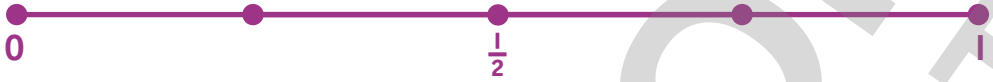
1 a A coin is flipped and lands flat. What are the possible outcomes?

_____

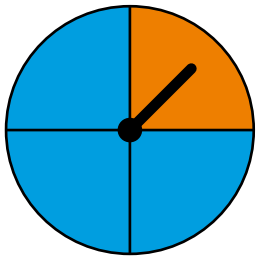
b Do they have an even chance of coming up? _____

c The probability of the coin landing on heads is 1 in _____ .

d Circle where this probability sits on the line.



2 a Do the possible outcomes on this spinner have an even chance of coming up? _____



b Why? _____

c Write the outcomes and their probabilities.

_____ has a _____ in 4 chance.

_____ has a _____ in 4 chance.

d Write both probabilities on the line as a fraction.

Probability can be written as a fraction.

1 in 2 → $\frac{1}{2}$



3 I pull one ball from the bag without looking.



a How many balls? _____

b How many possible outcomes? _____

c Do the outcomes have an even chance of being pulled? _____

d Why? _____

4 What is the probability of pulling out a:

a a yellow ball? $\frac{\square}{\square}$ b a green ball? $\frac{\square}{\square}$ c a red ball? $\frac{\square}{\square}$

5 a Add the probabilities for the three outcomes above.

What number do they add to? _____

b Add the probabilities for the two spinner outcomes.

What number do they add to? _____

c Add the probabilities for the two coin flip outcomes.

What number do they add to? _____

d Complete: The probabilities for all outcomes add to _____ .



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Probability experiment

TERM 3
Week 9

1 a What are the possible outcomes when rolling a die? _____

b Do all the outcomes on a die have an equal chance of being rolled? _____

c What is the probability of each outcome? _____

d If you roll a die 24 times, will all six outcomes be rolled the same number of times? _____ Explain your answer _____

2 Conduct a probability experiment. Work in pairs. You need a six-sided die.

a Take turns to roll the die. Record the results with Tally marks.

b Stop after 24 rolls. Count the tally marks to find the Totals.



Outcomes	Tally marks	Totals
1		
2		
3		
4		
5		
6		

Outcomes are what could happen. Results are what does happen.



3 Think about your results.

a Were all six outcomes rolled the same number of times? _____

b Why? _____

_____

4 Make some predictions for what will happen when you repeat the experiment.

a Will the results be the same? _____

b Why? _____

_____

c Which number do you think is most likely to get rolled? _____

d Which number do you think is least likely to get rolled? _____

Predictions are guesses about what might happen.



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Probability and results

TERM 3
Week 9



1 Repeat the probability experiment.

a Take turns to roll the die. Record the results with Tally marks.

b Stop after 24 rolls. Count the tally marks to find the Totals.

Outcomes	Tally marks	Totals
1		
2		
3		
4		
5		
6		



2 Think about your results. Tick if they matched your predictions in question 4.

a Are the results the same as your first experiment? _____ ☐

b Which number was rolled the most? _____ ☐

c Which number was rolled the least? _____ ☐



3 Write about your predictions and the two sets of results.

_____

_____

4 Write the probability for each of these outcomes and put it on the fraction line.

a Roll a 7. _____

b Roll a number from 1 to 3. _____

c Roll a 4 or 5. _____

d Roll a number from 1 to 6. _____



5 Complete using these words: *likely*, *unlikely*, *even chance*, *impossible* and *certain*.

a Rolling a 7 is _____.

b Rolling a number from 1 to 3 is _____.

c Rolling a 4 or 5 is _____.

d Rolling a number from 1 to 6 is _____.

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Chance

Bart has seven puppets in a box.



1 Bart closes his eyes and chooses one puppet at random. Is choosing the mouse:

☐ impossible ☐ unlikely ☐ even chance ☐ likely ☐ certain

2 Explain what it means to choose *at random*.

_____

3 What chance does Bart have of choosing the cat puppet? _____

4 Which is more likely?

☐ choosing the bat ☐ choosing the penguin ☐ they are equally likely

5 Which event is impossible?

☐ choosing a dinosaur ☐ choosing the bat ☐ choosing the mouse

6 Bart removes the cow and the chicken puppets from the box.

Is choosing the cat now more likely, less likely or the same chance?

☐ more likely ☐ less likely ☐ the same chance

Why? _____

7 Draw a blue arrow to show the chance of choosing the penguin when all seven puppets are in the box.

impossible — certain

8 Bart removes the cow, mouse and cat puppets. Draw a red arrow to show the new chance of choosing the penguin.

Mastery Checklist I can:

- ☐ use words to describe the likelihood of events
- ☐ represent probability using a fraction line
- ☐ identify possible outcomes from an event
- ☐ conduct chance experiments
- ☐ predict and discuss results

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Checkpoint 6

1 p 124

a $74 \times 10 =$ _____

b $8.9 \times 10 =$ _____

c $16 \times 100 =$ _____

d $\$3.59 \times 100 =$ _____

2 p 118

a
$$\begin{array}{r} 43 \\ \times\ 8 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 39 \\ \times\ 5 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} 71 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

3 p 124

×	5	7	8	9
11				
12				

4 p 130

a

56	6

$62 \div 8 =$ _____

b

81	3

$84 \div 9 =$ _____

5 p 126

a $4 \times 36 =$

4 × _____	4 × _____

= _____ + _____

= _____

b $7 \times 65 =$

7 × _____	7 × _____

= _____ + _____

= _____

6 p 132

a $3\overline{)251}$

b $4\overline{)297}$

c $5\overline{)870}$

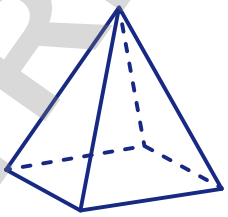
d $6\overline{)381}$

7 p 127

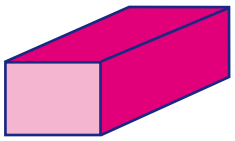
a
$$\begin{array}{r} 63 \\ \times\ 57 \\ \hline \\ \\ + \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 49 \\ \times\ 76 \\ \hline \\ \\ + \\ \hline \\ \hline \end{array}$$

8 Circle the apex. p 134

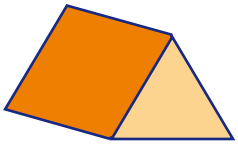


9 Name each shape. p 135

a 

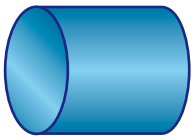
_____

_____

b 

_____

_____

c 

_____

_____

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Checkpoint 6

10 What shape is this? p 135

I have 5 flat faces.

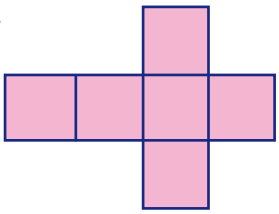
2 faces are triangles.

What am I? _____

_____

11 This is the net of a 3D shape. p 136

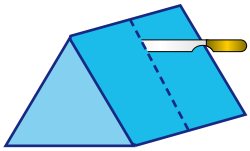
Name the shape.



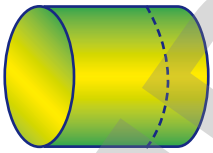
_____

12 Draw the cross-section. p 137

a



b

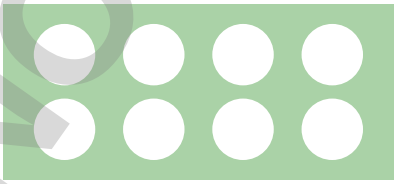


13 Colour these balls so that: p 139

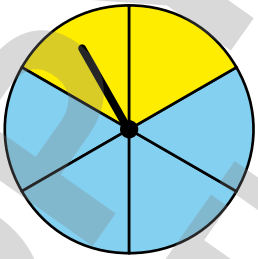
a There is an even chance of pulling out a red or blue ball.



b You are certain to pull out a blue ball.



14 Write the outcomes for this spinner. p 140



a Yellow has a ____ in ____ chance.

b Blue has a ____ in ____ chance.

15 A bag has 8 balls inside. p 140



What is the probability of pulling out a:

a yellow ball $\frac{\square}{\square}$ **b** green ball $\frac{\square}{\square}$

c red ball $\frac{\square}{\square}$

16 Complete each sentence using one of these. p 142

Impossible certain even chance likely unlikely

a Rolling an 8 is

_____

b Rolling a number from 4 to 6 is

_____

c Rolling a number from 1–6 is

_____

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Negative numbers



The arrows on a number line indicate that it goes on forever in both directions.

Whole numbers greater than zero are called positive integers.

Whole numbers less than zero are called negative integers.

Use + for positive integers.
Use – for negative integers.

1 Count back from 0. Write the number you land on.

a Count back 1. _____ b Count back 2. _____

c Count back 4. _____ d Count back 5. _____

2 Count back from 2. Write the number you land on.

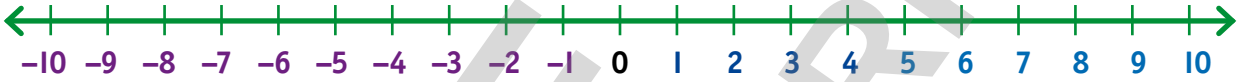
a Count back 2. _____ b Count back 3. _____

c Count back 5. _____ d Count back 6. _____

3 Count back from 5. Write the number you land on.

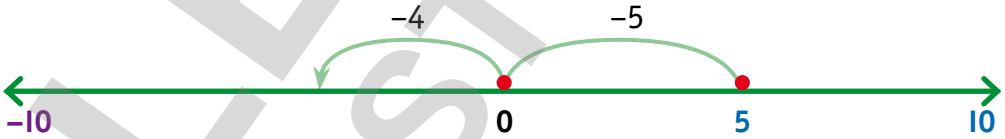
a Count back 5. _____ b Count back 6. _____

c Count back 8. _____ d Count back 10. _____

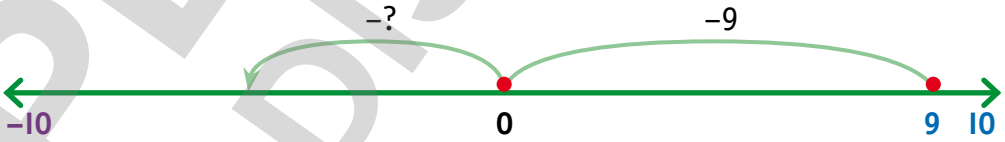


4 Use the number line to subtract. Jump down to zero then count down.

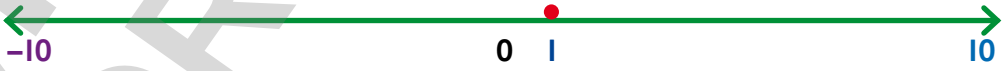
a 5 – 9 = _____



b 9 – 15 = _____

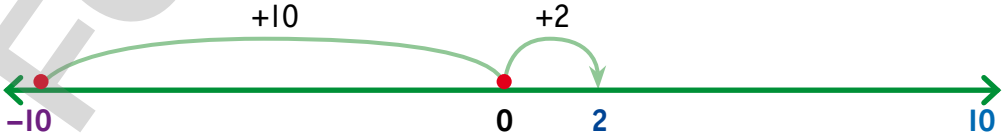


c 1 – 9 = _____

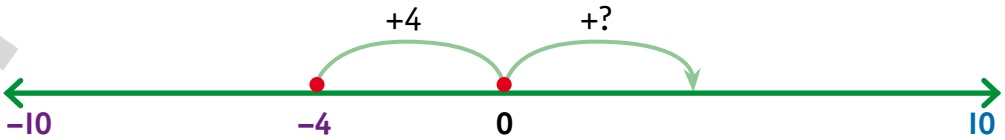


5 Use the number line to add. Jump up to zero then count on.

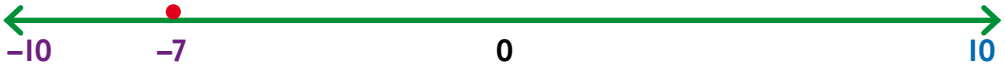
a –10 + 12 = _____



b –4 + 8 = _____



c –7 + 10 = _____



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Integers

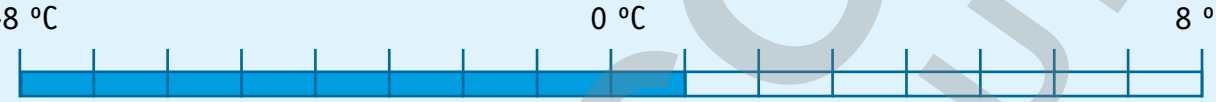
–6, –5, –4, –3, –2, –1, 0, 1, 2, 3, 4, 5, 6

Negative numbers are below zero. –3 = minus 3 and means 3 below zero.

1 Complete the number line using positive and negative numbers.



2



a Write in the temperatures below zero.

b What is the temperature? _____

c If the temperature falls by 5 °C, what is the new temperature? _____

d If the temperature rises by 3 °C, what is the new temperature? _____

e By how much does the temperature have to rise to show 10 °C? _____

f If the thermometer shows –5 °C in one hour's time, by how much has it fallen? _____

3 Put each set of numbers in ascending order.

a 3, –3, 1, –4, 0, –2, –5, –1, 2 _____

b –10, 0, 5, –5, 10, 15, –15 _____

c –2, –4, 6, 2, 0, 4 _____

4 Use a number line to solve.

a The temperature was 3° C. It dropped 7° C.

What is the temperature now? _____

b A submarine is 2 metres above sea level. It dives down 6 metres.

What is its depth now _____

Challenge!

Draw a number line to find the difference between the world's lowest recorded temperature of –89 °C and the hottest at around 57 °C.

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Integers in context

1 On the number line, show the rise in temperature.



a Start at –2. Rise 3 °C.



b Start at –1. Rise 5 °C.



c Start at –4. Rise 7 °C.



d Start at –1. Rise 6 °C.



2 On the number line show a loss of:

a $5 from a start of $8. How much do we owe now? _____



b $15 from a start of $9. How much do we have now? _____



3 Use the number line to draw a diagram to solve these problems.

a We started out owing $10, but quickly earned $24. How much money do we have now?

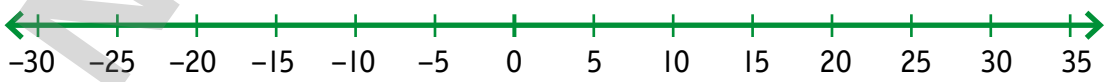
_____



b I stepped 9 steps forward, 6 steps backwards, another 5 steps backwards and 2 steps forward again. Where am I now? _____



c Jed gained 35 metres with a brilliant kick, but the opposition kicked the ball 48 m back. How far are they from where Jed first kicked the ball? _____



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Above and below sea level

TERM 4
Week 1

The positions below are measured in metres (m) compared with sea level.

Sea level is represented by 0 metres.

Heights above sea level are written as positive integers, e.g. +328 m.

Depths below sea level are written as negative integers, e.g. –3,800 m.



1 Write the object or place represented by each integer.

a +60 m _____

b +3,724 m _____

c –55 m _____

2 Complete each comparison using <, > or =.

a –55 _____ +60 **b** +328 _____ +60 **c** –3,800 _____ –55 **d** +8,849 _____ +3,724

3 How many metres are there between each pair of positions?

a the Titanic wreck and the top of the Sky Tower

Working: _____

_____

Answer: _____ m

b the bottom of the Mariana Trench and the top of the lighthouse

Working: _____

_____

Answer: _____ m

Challenge! How many metres are there between the top of Mount Everest to the bottom of the Mariana Trench?

Show your working:

_____

Answer: _____ m

Mastery Checklist

I can:
- ☐ recognise, read and write positive and negative integers
- ☐ locate, compare and order integers on a number line
- ☐ add and subtract integers using a number line and explain my thinking

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Understanding integers

1 The temperature at daybreak was –12 °C but by lunchtime it was +15 °C. How much did the temperature rise?



Answer _____

2 On Danny's fourth birthday he was 25 cm shorter than his older brother, but on his fourteenth birthday he was 8 cm taller. If his brother's height did not change, how many centimetres did Danny grow?



Answer _____

3 What is the difference between Aoroki/Mt Cook's height at +3,724 metres and the Taieri Plain, which is 2 m below sea level?



Answer _____

4 The surface of Lake Te Anau is 200 m above sea level. The deepest part of the lake is 425 m below the surface. How many metres below sea level is the deepest part of Lake Te Anau?



Answer _____

5 Mayan civilisation began in Central America in 2600 BC. By 1517 AD most Mayans had died due to diseases introduced by European settlement. How long did Mayan civilisation last?



Answer _____

I can solve problems by:

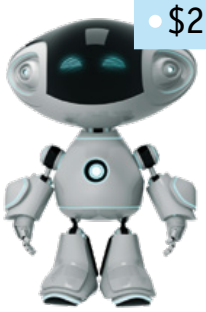
☐ understanding how integers are used in everyday life ☐ using a number line

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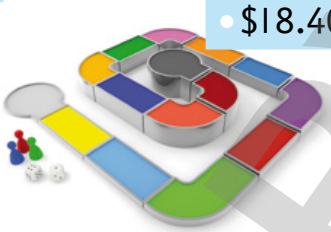
Shopping



$12.90



$22.20



$18.40



$89.90



$56.50



$11.80



$9.50



$39.90

1 Hana has $20. How much change will she get if she buys:

a the book? _____ b the cube? _____ c the movie ticket? _____

2 Which three items could Tia buy with $50? There may be more than one answer.

_____

3 What change from $50 would Tia get if she bought:

a the netball? _____ b the board game? _____

4 Hunter has $100. He buys the robot, the cube and the board game.

a How much change does he receive? _____

b What notes and coins could he get in the change? _____

5 a Which costs more? The scooter and the book OR The skateboard _____

b By how much? _____

6 Find two different combinations of three items that cost between $40 and $60.

_____

7 What could you buy with $100. Get as close to $100 as you can, without going over.

_____

Challenge! The shop is having a sale. Slash all the above prices in half.

Movie ticket = ☐ Robot = ☐ Board game = ☐ Scooter = ☐

Skateboard = ☐ Netball = ☐ Cube = ☐ Book = ☐

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Money amounts

1 Write the money amount.

a 3 dollars 20 cents = $_____

b 15 dollars 40 cents = $_____

c 62 dollars 90 cents = $_____

d 35 dollars 60 cents = $_____

e 4 dollars 5 cents = $_____

f 8 dollars 3 cents = $_____

g 15 cents = $_____

h 28 dollars 95 cents = $_____

2 Write these money amounts in words.

a $4.60 _____

b $18.30 _____

c $27.50 _____

d $102.90 _____

3 What money amount is shown on these calculator screens?

a 3.2 = $_____

b 15.4 = $_____

c 62.9 = $_____

d 35.6 = $_____

e 4.05 = $_____

f 8.0 = $_____

g 0.30 = $_____

h 28.9 = $_____



4 Round to the nearest whole dollar.

a $6.30 _____

b $4.70 _____

c $18.40 _____

d $12.10 _____

e $26.50 _____

f $15.70 _____

g $27.80 _____

h $43.20 _____

i $5.90 _____

5 Estimate the total. Round each price to the nearest dollar first.
Use the prices on page 151.

a the cube, the robot and the movie ticket

Estimated total:

$_____

Actual total:

$_____

b the scooter, the board game and the netball

Estimated total:

$_____

Actual total:

$_____

c the board game, the book and the skateboard

Estimated total:

$_____

Actual total:

$_____

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Number Financial mathematics: Calculating the total cost of items costing dollars and cents and the change;
Number Rational Numbers: Adding and subtracting decimals to two decimal places

Decimal algorithms

1 First estimate in whole numbers and then work out the answers.

a
$$\begin{array}{r} 7{\cdot}6 \\ 3{\cdot}8 \\ +\ 1{\cdot}4 \\ \hline \\ \hline \end{array}$$
Est. _____

b
$$\begin{array}{r} 9{\cdot}4 \\ 4{\cdot}8 \\ +\ 0{\cdot}6 \\ \hline \\ \hline \end{array}$$
Est. _____

c
$$\begin{array}{r} 11{\cdot}2 \\ 0{\cdot}8 \\ +\ 24{\cdot}5 \\ \hline \\ \hline \end{array}$$
Est. _____

d
$$\begin{array}{r} 3{\cdot}85 \\ 2{\cdot}07 \\ +\ 1{\cdot}92 \\ \hline \\ \hline \end{array}$$
Est. _____

e
$$\begin{array}{r} 5{\cdot}63 \\ 8{\cdot}71 \\ +\ 4{\cdot}58 \\ \hline \\ \hline \end{array}$$
Est. _____

f
$$\begin{array}{r} 7{\cdot}09 \\ 0{\cdot}38 \\ +\ 9{\cdot}17 \\ \hline \\ \hline \end{array}$$
Est. _____

+, – decimals

- **Keep decimal points under each other.**
- **Put a decimal point in the answer.**

$$\begin{array}{r} 7{\cdot}34 \\ +\ 1{\cdot}69 \\ \hline 9{\cdot}03 \end{array}$$
Est. 7 + 2 = 9

Hint Put the decimal point in the answer first so you don't forget.

2

a
$$\begin{array}{r} 3{\cdot}9 \\ -\ 1{\cdot}7 \\ \hline \\ \hline \end{array}$$
Est. _____

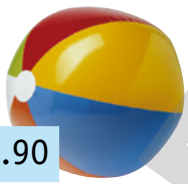
b
$$\begin{array}{r} 6{\cdot}1 \\ -\ 2{\cdot}6 \\ \hline \\ \hline \end{array}$$
Est. _____

c
$$\begin{array}{r} 4{\cdot}93 \\ -\ 1{\cdot}61 \\ \hline \\ \hline \end{array}$$
Est. _____

d
$$\begin{array}{r} 6{\cdot}52 \\ -\ 3{\cdot}78 \\ \hline \\ \hline \end{array}$$
Est. _____

e
$$\begin{array}{r} 9{\cdot}40 \\ -\ 5{\cdot}76 \\ \hline \\ \hline \end{array}$$
Est. _____

3


• $12.90


• $25.70



• $14.90


• $26.20


• $39.50

How much did they spend?

a Zuri bought thongs, a hat and a snorkel set.

_____

What is the change?

Zuri had $100.
What is the change?

_____

Working

Working

b Kirra bought a hat, sunscreen and a ball.

_____

What is the change?

Kirra had $60.
What is the change?

_____

Working

Working

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Add and subtract decimals

TERM 4
Week 2


$6.80

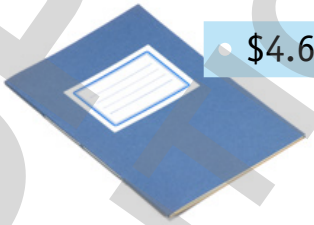

$3.70



$4.90


$13.80


$1.30


$4.60

When working with decimals, don't forget the decimal point in the answer.

1 Find the cost of:

a one calculator and notebook.

$	c
13.	80
+ 4.	60

b pencil case and pencils.

$	c
+	

c highlighters and a ruler.

$	c
+	

d calculator and pencils.

$	c
+	

2 What is the difference in price between:

a a notebook and a ruler?

$	c
4.	60
− 1.	30

b a calculator and pencil case?

$	c
−	

c the highlighters and pencils?

$	c
−	

d a calculator and the highlighters?

$	c
−	

3

a	**b**	**c**	**d**	**e**
6.21	4.93	8.02	3.89	5.14
+ 4.38	+ 6.08	+ 1.94	+ 1.01	+ 4.63

4

a	**b**	**c**	**d**	**e**
6.34	7.95	5.87	2.46	9.78
− 1.21	− 2.64	− 0.35	− 2.41	− 5.26

Mastery Checklist

I can: ☐ add totals and find change, make amounts in currency, round prices to the nearest ten cents or whole dollar, estimate and calculate costs

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Number Financial mathematics: Calculating the total cost of items costing dollars and cents and the change;
Number Rational Numbers: Adding and subtracting decimals to two decimal places

Healthy Eating

1 a You have $10 for lunch. Choose 3 items that would make a healthy lunch.



fruit 50c a piece



sandwich $3.20



hamburger $4.30



salad $2.99



sushi $3.60



milk $1.00



juice $1.20



muffins $2.40 each

b Choose 3 different lunch combinations.

My 1st choices	My 2nd choices	My 3rd choices

c Estimate the cost of each using rounding.

My 1st choice	My 2nd choice	My 3rd choice

d Calculate the actual cost.

$ c	$ c	$ c
+	+	+

I can solve problems by:

☐ adding different amounts of money ☐ estimating and checking answers

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Bar graph

The school canteen sold these drinks last Friday.



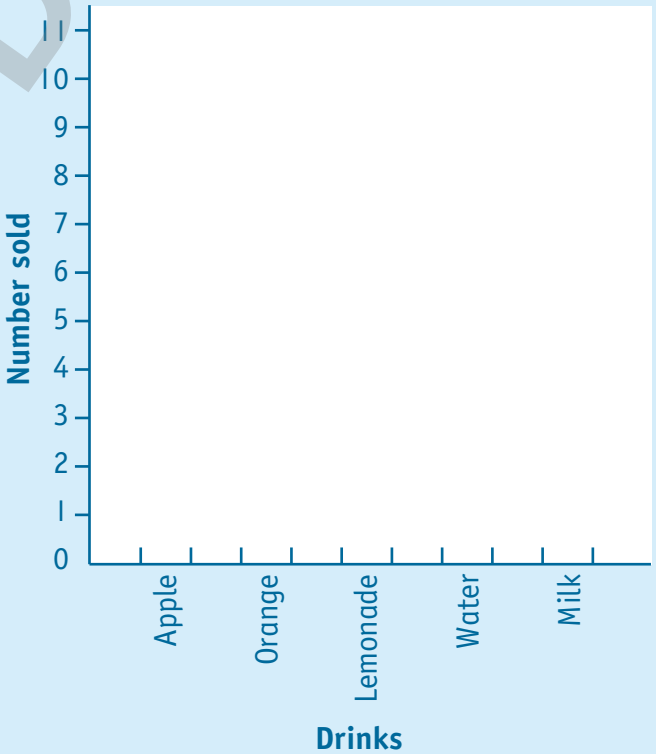
1 How many drinks were sold? _____

2 Complete this table.

Drink	Tally marks	Total
Apple		
Orange		
Lemonade		
Water		
Milk		

3 Use the table to complete the graph.

Title: _____



4 Which drink is:

a most popular? _____

b least popular? _____

5 How could the school canteen use this data?

_____

_____

_____

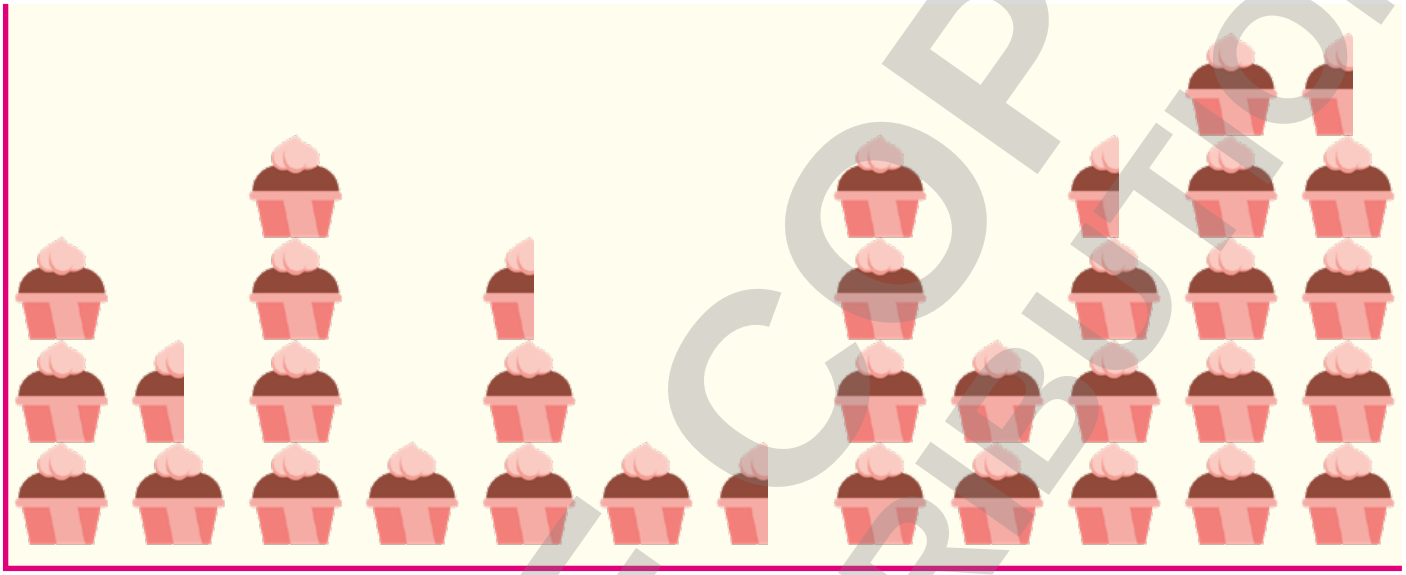
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Picture graph

TERM 4
Week 3

Use the graph to answer the following questions.

Birthdays in Year 5



1 How many students are in Year 5? _____

2 Which month has the same number of birthdays as March? _____

3 How many students have a birthday in these months?

a July _____ b December _____

c January _____ d November _____

4 Which month has the most birthdays? _____

5 What is the difference in the number of birthdays in these months?

a January and April _____ b September and October _____

c May and February _____ d June and July _____

6 How many students have a birthday in:

a summer? _____ b winter? _____ c autumn? _____ d spring? _____

7 Eight new students joined Year 5, and they all have birthdays in April.
Draw cupcakes to show their birthdays.

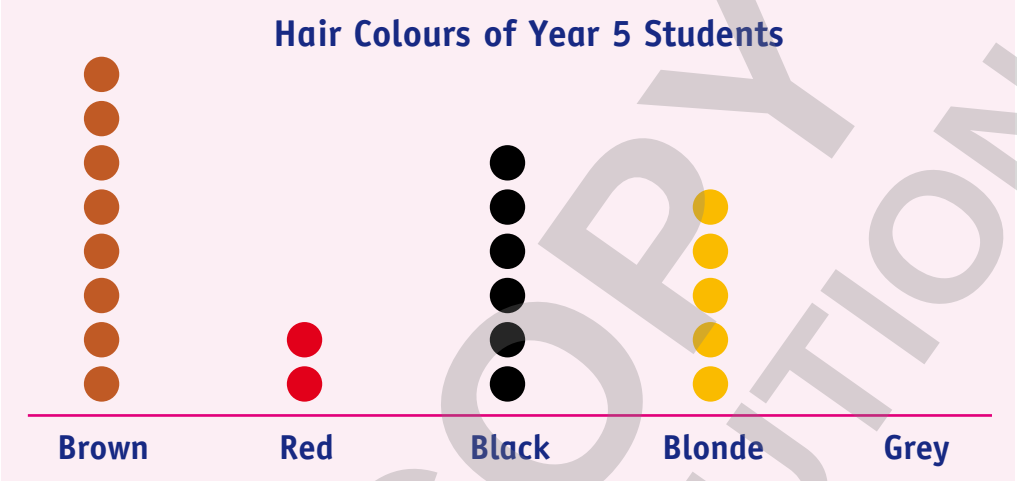
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Dot plots

A dot plot uses dots to represent data.

This dot plot shows the different hair colours of students in Year 5.

Key ● = 1 student



1 Use the dot plot to complete the table.

Hair colour	Brown	Red	Black	Blonde	Grey
Number of students					

2 How many students were surveyed? _____

3 Which hair colour was least common? _____

4 Did more or less students have brown hair than blonde hair? _____

5 Did more or less students have red hair than black hair? _____

6 Show the information in the table below on the following dot plot.

Goals kicked by Sam

Season	2018	2019	2020	2021	2022	2023
Number of goals	16	6	8	10	12	14

Key: ● = 2 goals



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More bar graphs

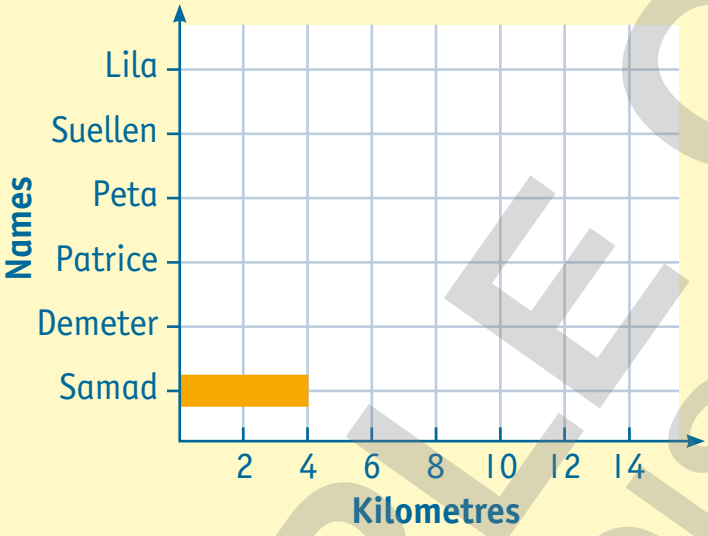
Six friends recorded the distances they travel to school each day.

Name	Distance (km)
Samad	4
Demeter	9
Patrice	14
Peta	10
Suellen	6
Lila	10

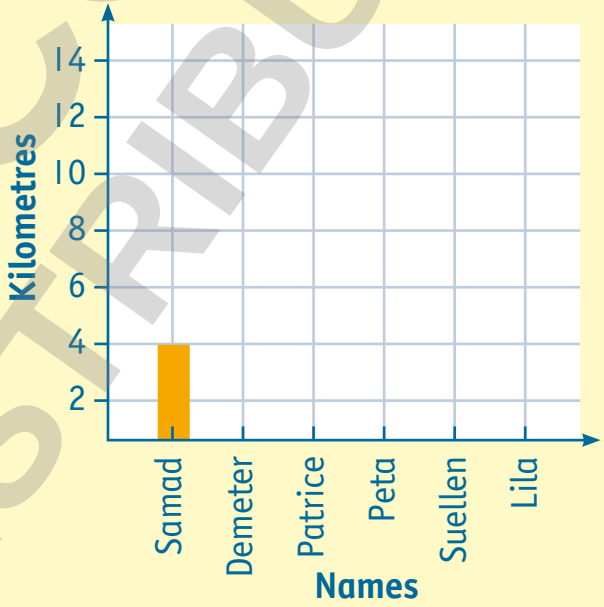


1 Complete these graphs.

a



b



2 a Why are the graphs different? _____

_____

b Do they tell us the same information? _____

3 a Who lives closest to school? _____

b Which two friends live the same distance from school? _____ _____

c Does this mean they live near each other? _____ Why? _____

_____

4 Write a new title that tells exactly what the graph is about.

_____

Mastery Checklist I can:

- ☐ record data in tables
- ☐ draw bar graphs and dot plots
- ☐ interpret tables, bar graphs, picture graphs and dot plots

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Survey

You have overseas visitors staying for a weekend. You need to choose a special activity.

1 Survey 30 people to find out their favourite activity. Ask adults as well as children.

Activity	Tally marks	Total
Sailing a boat		
A bushwalk		
Camping		
Surfing at a beach		
Staying on a farm		
Visiting the city		





2 Draw a graph to show the results of your survey.
Remember to label the axes and give your graph a title.

3 a What is the most popular activity? _____

b What is the least popular activity? _____

4 a What activity would you choose? _____

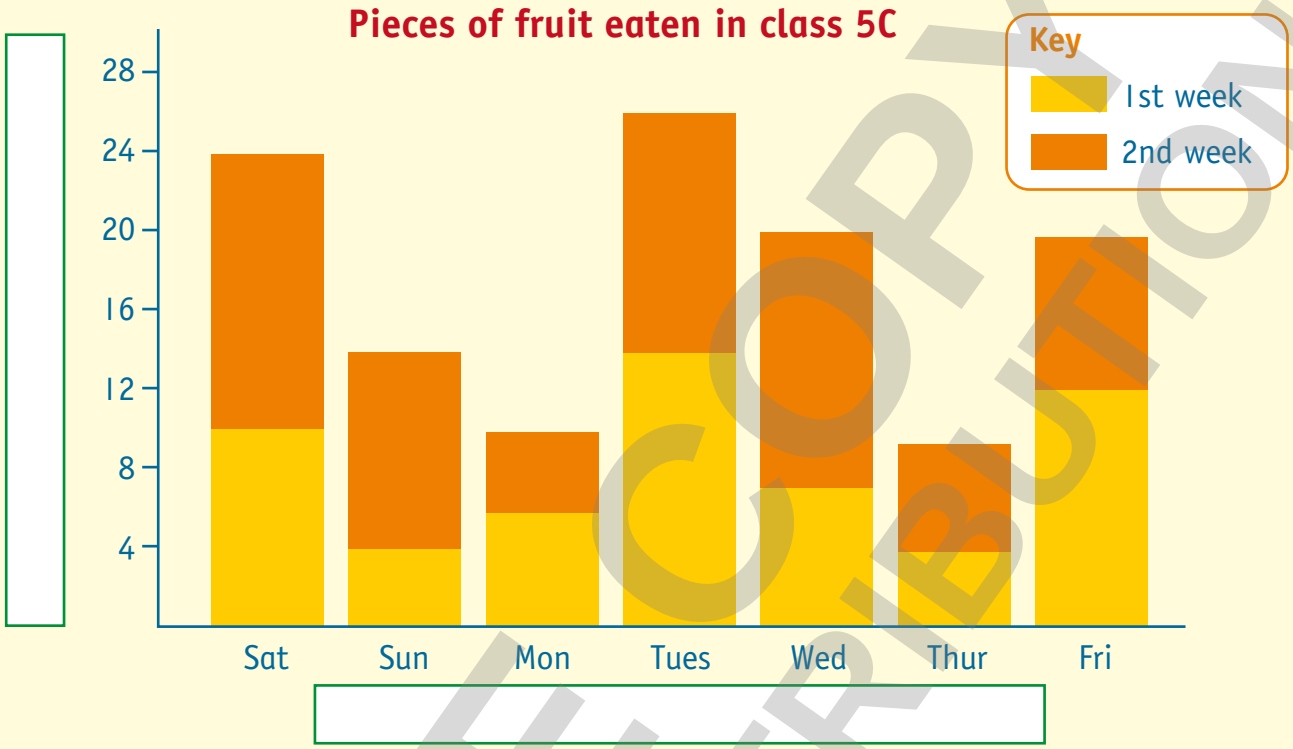
b Why? _____

I can solve problems by:

☐ completing a survey ☐ graphing data ☐ interpreting a graph

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Stacked bar graph



Look carefully at the stacked bar graph.

1 In what way is it different to a normal bar graph? _____

_____

2 What does the key tell you? _____

_____

3 What is this graph about? _____

4 Label the two axes.

5 Write 5 questions that could be answered using this graph.

a _____

b _____

c _____

d _____

e _____

6 Name other topics that could be shown with 2 sets of data stacked on top of each other.

_____

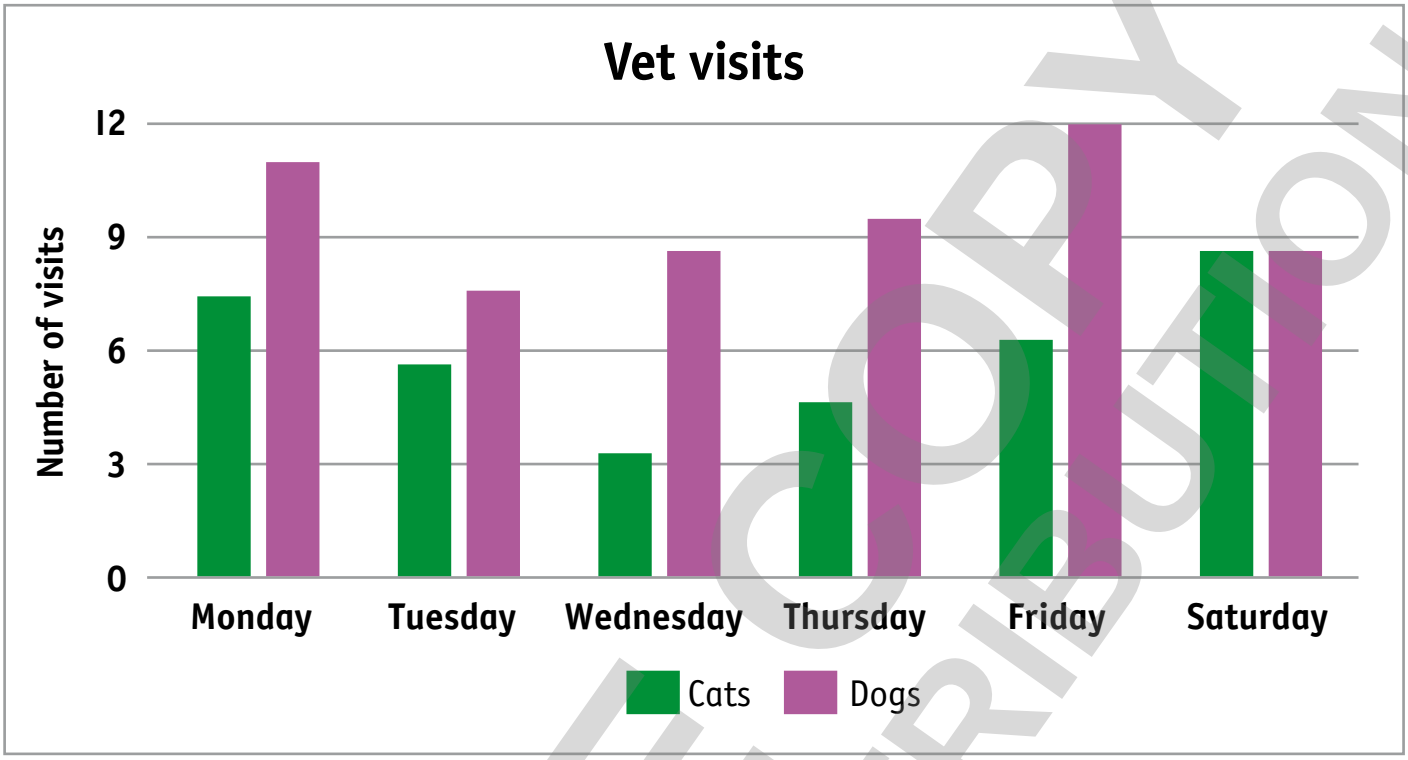
_____

_____

_____

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Clustered bar graph



1 In what way is this graph different to a normal bar graph? _____

_____

2 What does the key tell you? _____

_____

3 What is this graph about? _____

_____

4 Write two statements comparing the data on cats and dogs in this graph.

a _____

b _____

5 How do you think the vets will use this information?

_____

_____

Challenge!

Add this data to the graph.

	M	T	W	Th	F	S
Birds	2	3	1	5	2	4

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Statistics Interpretation of data: Answering questions about bivariate data in which a specific category in one variable appears more frequently than a specific category in another variable; Bivariate data is data in a set that has two variables for each subject; Paired categorical data can be visualised with a clustered bar graph

Interpreting data

Meals	Boys	Girls
Steak	9	2
Chicken	3	8
Fish	2	3
Sausages	6	1
Pasta	2	6



This table is the result of a survey.

1 a Tick the best title.

- Favourite meal
- What I like to eat
- What I will eat next Monday

b Give a reason for your choice. _____

_____

Use the survey to answer these questions.

2 How many people were surveyed? _____

3 Were there equal numbers of boys and girls? _____

4 What was the favourite for:

a boys? _____ b girls? _____

5 How many chose:

a steak? _____ b fish? _____ c pasta? _____

6 Which meal was chosen:

a most often? _____ b least often? _____

7 a Does this survey show all food eaten by boys and girls? _____

b Why? _____

8 What 5 meals would you include in a similar survey?

_____

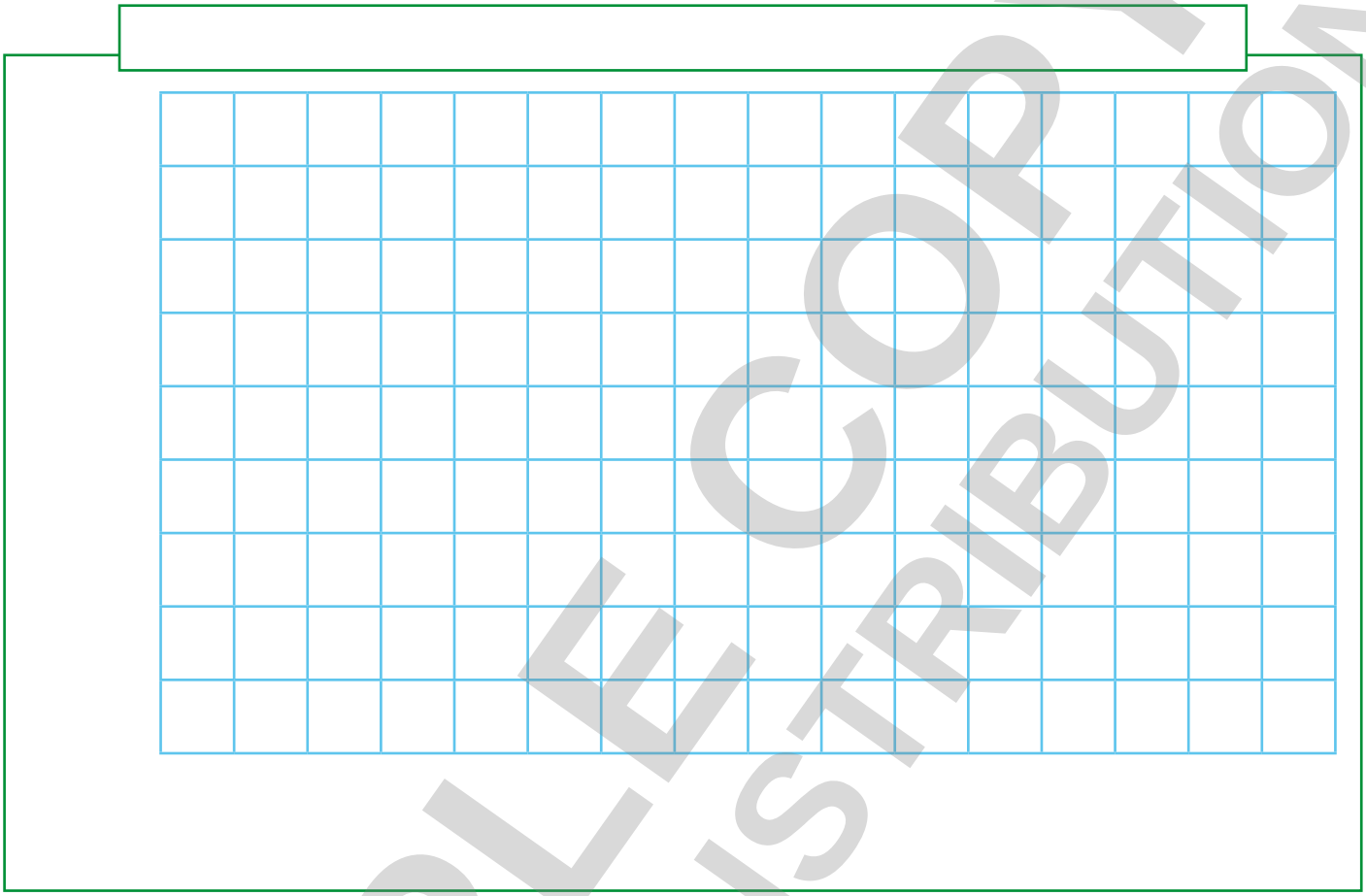
Challenge! Run your own class survey.
Use your 5 meals and interview both boys and girls.

survey the class

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Representing data

1 Using the data from the previous page or your own survey, draw a clustered bar graph. Give the graph a title and label the axes. Include a key for the colours.



2 Write one question of each type. Then answer them.

a Compare two categories. Example: How many more girls chose chicken than boys?

_____

b Find a total. Example: How many students chose steak or sausages altogether?

_____

3 Explain or predict.

a Which meal shows the biggest difference between boys and girls? _____

b What is one conclusion you can make from this graph? _____

_____

Challenge! Use graph paper to draw a stacked bar graph for the same data. Explain which one you prefer and why.

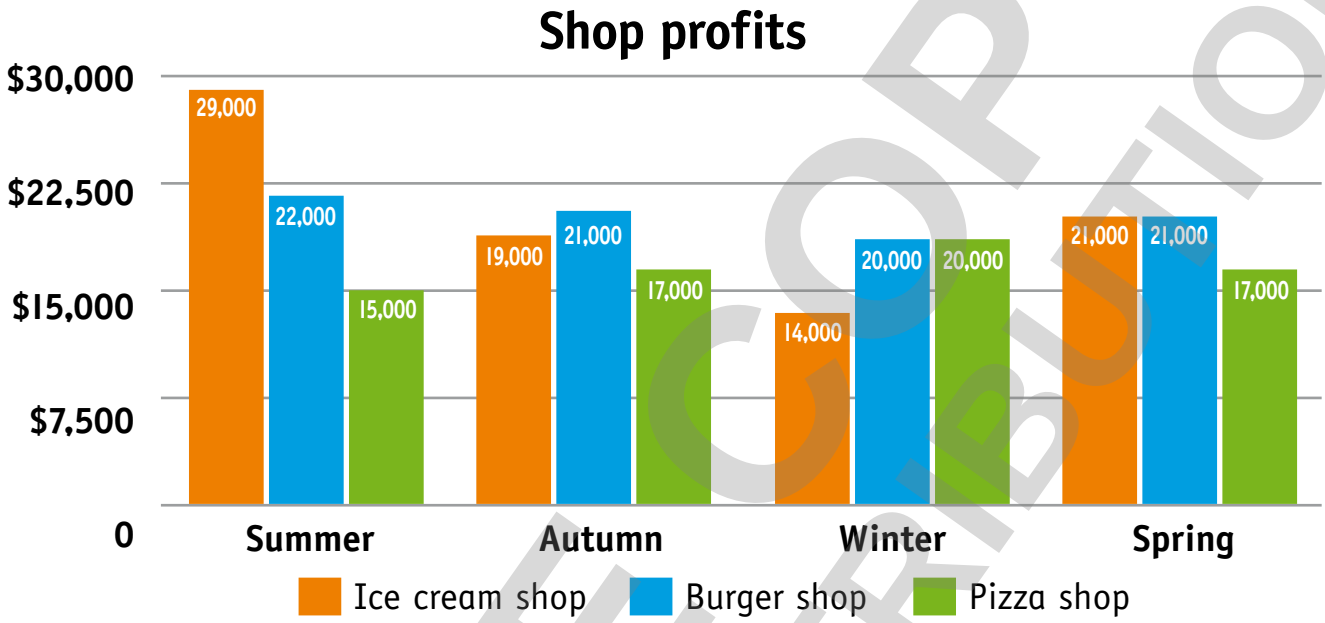
Mastery Checklist

I can: ☐ interpret and create stacked and clustered bar graphs, compare data, and use graphs to answer questions

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Using data

Use the data from the graph to answer questions.



1 a Which shop makes the highest profit in one season? Ice cream Burgers Pizza

b Which shop has the lowest profit in one season? Ice cream Burgers Pizza

c Which shop makes around the same profit all year? Ice cream Burgers Pizza

2 a How much money does the ice cream shop make in one year? _____

b How much money does the burger shop make in one year? _____

c How much money does the pizza shop make in one year? _____

d Which shop makes the most money in a year? Ice cream Burgers Pizza

e Which shop makes the least money in a year? Ice cream Burgers Pizza

3 Choose which shop you would like to own and explain why.

_____

_____

_____

_____

_____

_____



I can solve problems by:

☐ finding information in graphs ☐ using data to answer questions and make decisions

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Continuous numerical data

Continuous data measurements are often rounded to make them easier to compare.

A plant measures 14·7 cm.

Rounded to the nearest centimetre: 15 cm



Remember
When rounding to the nearest whole number:
- **0·0–0·4 rounds down**
- **0·5–0·9 rounds up**

1 Round each measurement to the nearest centimetre.

a 26·4 cm = _____ cm **b** 143·7 cm = _____ cm **c** 158·2 cm = _____ cm

d 171·9 cm = _____ cm **e** 182·5 cm = _____ cm **f** 195·1 cm = _____ cm

g 207·6 cm = _____ cm **h** 224·3 cm = _____ cm **i** 724·4 cm = _____ cm

2 Round each measurement to the nearest kilogram.

a 24·6 kg = _____ kg **b** 31·2 kg = _____ kg **c** 42·8 kg = _____ kg

d 56·5 kg = _____ kg **e** 63·4 kg = _____ kg **f** 79·9 kg = _____ kg

g 84·1 kg = _____ kg **h** 92·7 kg = _____ kg **i** 47·7 kg = _____ kg

3 Round each temperature to the nearest degree Celsius.

a 18·2 °C = _____ °C **b** 21·8 °C = _____ °C **c** 24·4 °C = _____ °C

d 19·7 °C = _____ °C **e** 27·5 °C = _____ °C **f** 31·1 °C = _____ °C

g 28·9 °C = _____ °C **h** 16·3 °C = _____ °C **i** 46·4 °C = _____ °C

4 Which measurements round to the same value? Draw lines to match.

12·6 cm **13·2 cm** **13·8 cm** **14·4 cm** **14·5 cm** **15·3 cm**

13 cm **14 cm** **15 cm**

5 Collect your own data. Measure five classroom objects to the nearest centimetre.

Object	Actual measurement	Rounded measurement

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Grouping data

TERM 4
Week 5

When there are many measurements, it can be easier to organise them into groups. Each group of numbers is called an interval.

Example: Plant heights (cm)
12, 14, 16, 17, 18, 21, 22, 24

Height (cm)	Frequency
10–14	2
15–19	3
20–24	3

The frequency tells us how many measurements are in each group.

1 Circle the correct interval.

a 13 cm	b 17 cm	c 22 cm	d 29 cm	e 34 cm	f 38 cm
☐ 10–14	☐ 10–14	☐ 10–14	☐ 20–24	☐ 25–29	☐ 30–34
☐ 15–19	☐ 15–19	☐ 15–19	☐ 25–29	☐ 30–34	☐ 35–39
☐ 20–24	☐ 20–24	☐ 20–24	☐ 30–34	☐ 35–39	☐ 40–44

2 Complete the grouped table. The heights of 15 plants were measured.

12 cm	14 cm	17 cm
18 cm	21 cm	16 cm
13 cm	24 cm	19 cm
22 cm	15 cm	23 cm
11 cm	20 cm	17 cm

Height (cm)	Frequency
10–14	
15–19	
20–24	



3 Complete the frequency table. The temperatures were recorded over 12 days.

18 °C	22 °C	19 °C
24 °C	21 °C	20 °C
17 °C	23 °C	18 °C
25 °C	22 °C	20 °C

Temperature (°C)	Frequency
15–19	
20–24	
25–29	



4 Use tally marks. The masses of 13 pumpkins were recorded.



4 kg 6 kg 7 kg 5 kg
9 kg 8 kg 6 kg 7 kg 6 kg
5 kg 4 kg 10 kg 8 kg

Mass (kg)	Tally	Frequency
4–5		
6–7		
8–9		
10–11		

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Reading a data table

A grouped data table organises measurements into ranges.
When interpreting a table, think about:

- What was measured?
- What units were used?
- Which group occurs most often?
- Where is the middle of the data?
- How spread out is the data?

The heights of students in Year 5.

Height (cm)	Frequency
120–129	2
130–139	5
140–149	9
150–159	6
160–169	3

1 Describe the data.

a What was measured? _____

b What units were used? _____

c How many groups are shown? _____



2 Answer the questions.

a How many students were measured altogether? _____

b Which height group contains the most students? _____

c Which height group contains the fewest students? _____

d How many students were shorter than 140 cm? _____

e How many students were 150 cm or taller? _____

3 a The middle of the data appears in which group?

120–129 cm ☐130–139 cm ☐140–149 cm ☐150–159 cm ☐160–169 cm

b Explain your thinking.

_____

4 Describe the spread.

a Which group has the smallest number of students? _____

b What group has the most students? _____

c How spread out are the heights? _____

5 Describe the data. Write two things you can tell about the students' heights.

a _____

b _____

6 Predict. If another Year 5 class was measured, which height group do you think would have the most students? Explain why.

_____

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Investigating data tables

When investigating a data table, look for:

- the peak (the group with the highest frequency)
- the middle group(s)
- the spread (from the lowest group to the highest group)
- unusual or interesting results

The daily temperatures in a town were recorded during one month.

Temperature (°C)	Frequency
10–14	2
15–19	6
20–24	9
25–29	5
30–34	2

1 Describe the data.

a What was measured? _____

b What units were used? _____

c How many temperature groups are shown? _____

2 Answer the questions.

a How many days were recorded? _____

b Which temperature range occurred most often? _____

c Which temperature ranges occurred least often? _____

d How many days were below 20 °C? _____

e How many days were 25 °C or higher _____



3 Find the peak and middle.

a What range is the peak of the data? _____

b Which range contains the middle of the data? _____

c Explain how you decided. _____

_____

4 Describe the spread.

a What is the lowest temperature range? _____

b What is the highest temperature range? _____

c What is the spread of the data? _____

Mastery Checklist

I can:
- ☐ collect and round continuous numerical data
- ☐ organise continuous data into grouped tables
- ☐ answer questions using grouped data tables
- ☐ describe patterns, middle groups and spread in data

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Checkpoint 7

1 Fill in this number line from –5 to +5. p 147



2 Show on the number line: Lon's progress from 5 km behind to 4 km in front of his team. p 147



p 148

3 Put these numbers in ascending order.

–3, 0, 5, –10, 8

_____

p 148

4 On this number line show the rise in temperature of 4 °C from –2 °C.



5 How many $5 notes make $100? _____ p 152



6 Make $10 in four different ways. p 152

a _____

b _____

c _____

d _____

7 Round to the nearest dollar. p 152

a $4.22 ____

b $7.09 ____

c $5.68 ____

8 Complete. p 153

a

+		
49	52	
38	67	

b

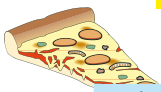
–		
86	37	
49	27	

9 Complete. p 154

×	6	8	4	13	20
7					
4					
9					

p 155

10 How much?



a 3 hamburgers = _____ • $1.80

b 4 pizza slices = _____



c 7 hot dogs = _____ • $2.35

d one of each = _____



e 9 pizza slices + 3 hot dogs = _____ • $2.15

p 154

11

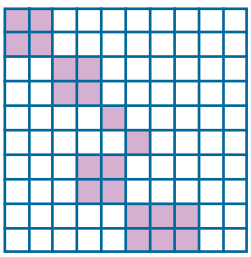
a
$$\begin{array}{r} 8{\cdot}4 \\ 3{\cdot}8 \\ +\ 7{\cdot}7 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 8{\cdot}7 \\ -\ 4{\cdot}3 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} 6{\cdot}52 \\ -\ 2{\cdot}87 \\ \hline \\ \hline \end{array}$$

p 155

12 Write the number coloured.

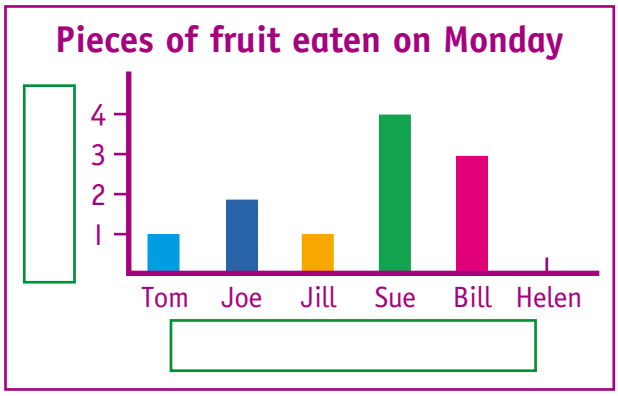


$\frac{____}{100}$ = 0·____

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Checkpoint 7

13 p 156



a Label the axes.

b How much was eaten by boys? _____

c Who ate no fruit? _____

d How many children were asked? _____

e How much fruit was eaten? _____

14 Kai picks 374 cherries from each of 6 trees. How many altogether? p 166



15 p 166



Pete had $10. What change does he get if he buys 1 kg of:

a bananas? _____

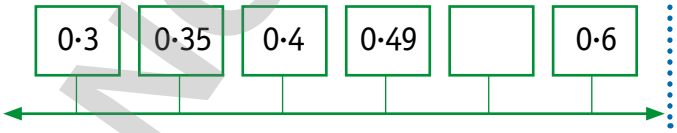
b grapes? _____

c apples? _____

d strawberries? _____

16 Which number goes in the box? p 166

0·4 0·41 0·48 0·56



17 Round each measurement to the nearest centimetre. p 166

a 28·4 cm = _____

b 193·7 cm = _____

p 167

18 The heights of 9 plants were measured. Complete the grouped table.

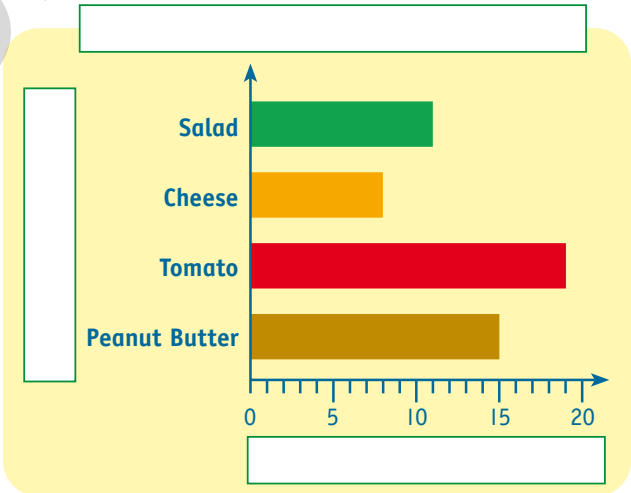
16 cm 7 cm 13 cm 8 cm
9 cm 12 cm 18 cm 10 cm 14 cm

Height (cm)	Frequency
6–10	
11–15	
16–20	

19 Which group has the smallest number of plants? _____ p 168

Which group has the most? _____

20 On Monday the canteen drew this graph about the sandwiches they made. p 159



a Give the graph a title.

b Label the axes.

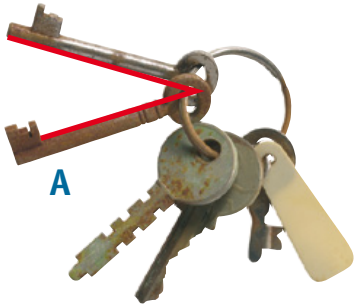
c Write one question you could ask about the graph.

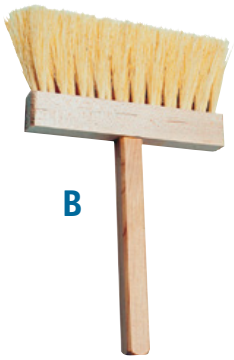
_____

_____

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Angle types

A 

B 

C 

D 

E 

F 

G 

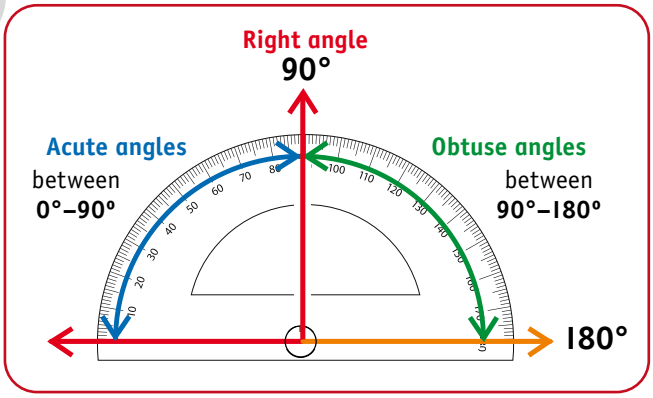
H 

I 

J 

K 

L 



1 Mark one angle in each picture.

2 Name the types of angles (right angle, acute angle, obtuse angle).

A acute _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____

J _____ K _____ L _____

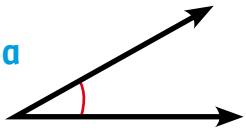
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Measurement Measuring: Describing and classifying angles and turns using the terms acute, right, obtuse, straight, and reflex; Constructing angles

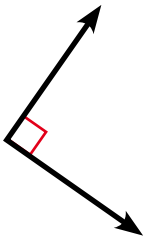
Classify angles

1 Colour the right angles pink, acute angles blue, obtuse angles green, reflex angles orange.

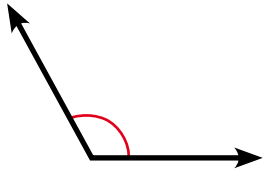
a



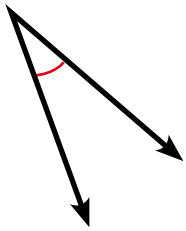
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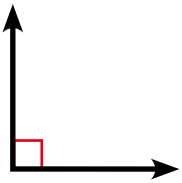
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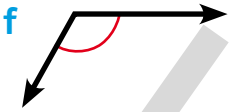
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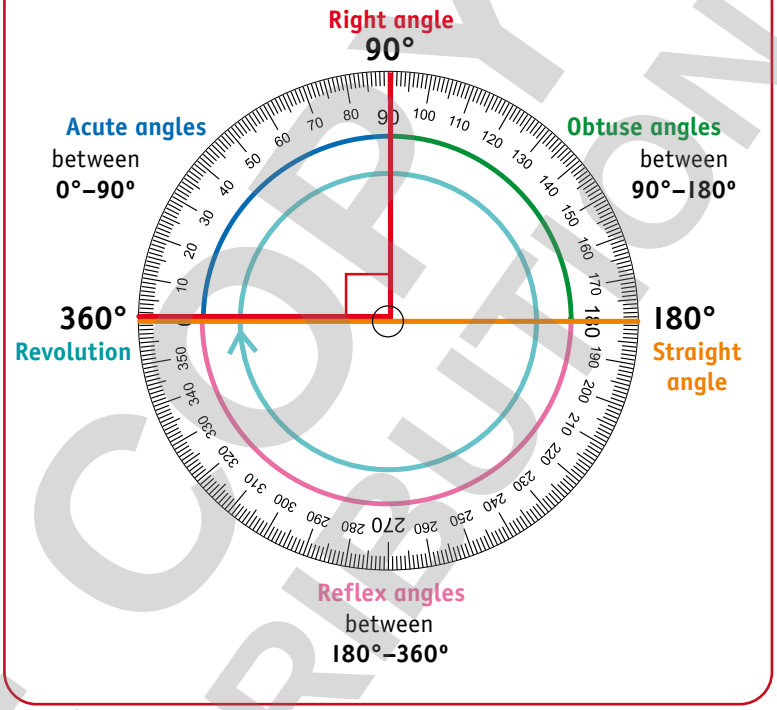


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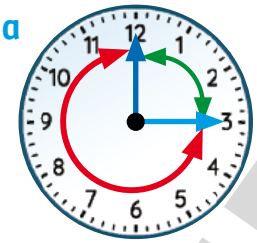
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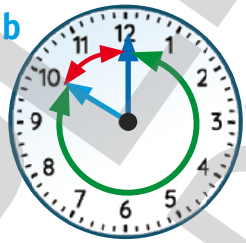


2 Label both angles.

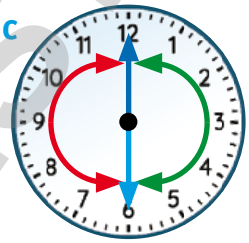
a



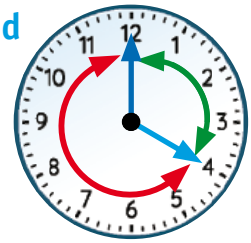
b



c



d



3 Draw:

a an acute angle.

b a right angle.

c an obtuse angle.

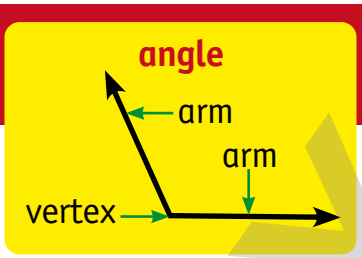
d a straight angle.

e a reflex angle.

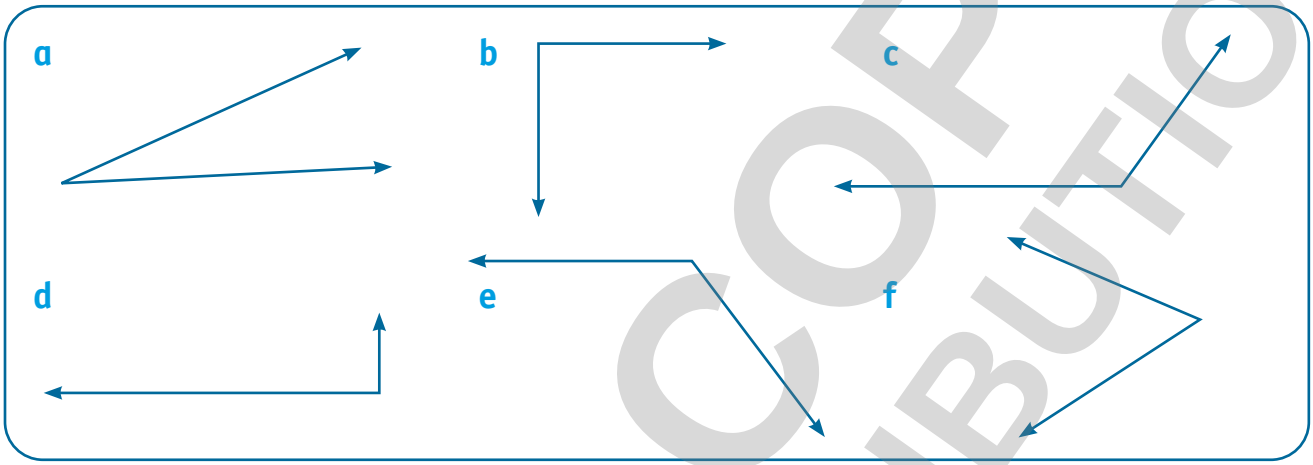


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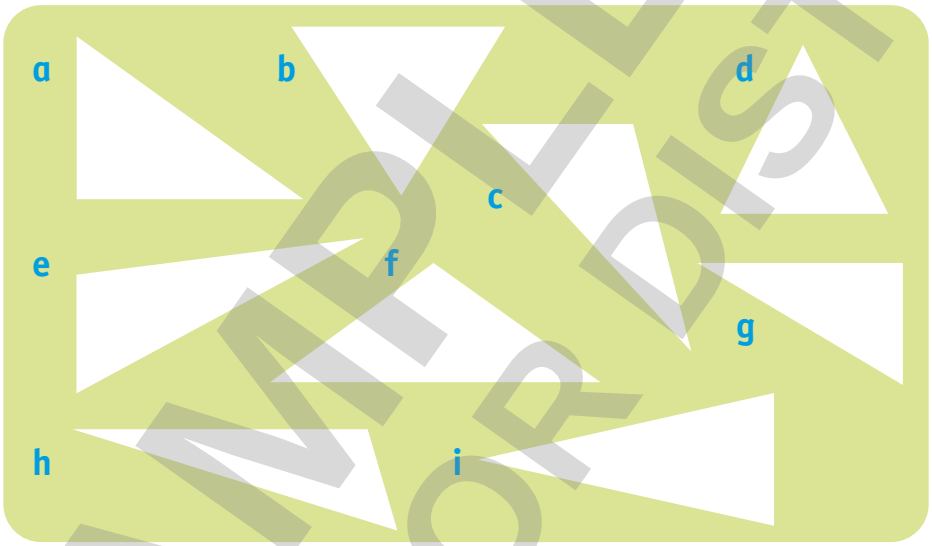
Vertex and arms



1 a Put a red dot at the vertex of each angle.
b Colour the arms of the acute angles green.
c Colour the arms of the obtuse angles blue. d Colour the arms of the right angles yellow.



2 Write **R** on the right-angled triangles, **A** on the acute-angled triangles and **O** on the obtuse-angled triangles.



Triangles

One right angle = right-angled triangle

All acute angles = acute-angled triangle

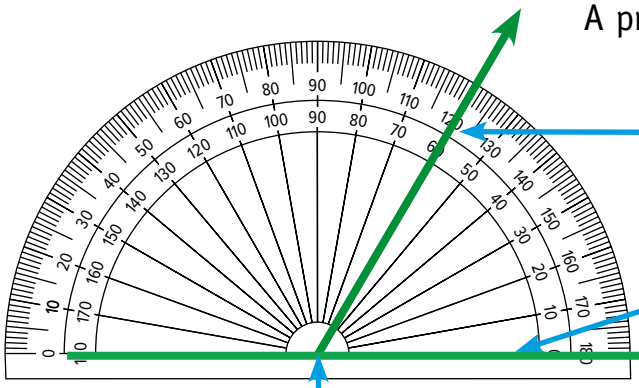
One obtuse angle = obtuse-angled triangle

Challenge! How many 2D shapes can you draw that have a reflex angle in them?

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Measure angles

A protractor is used to measure angles.

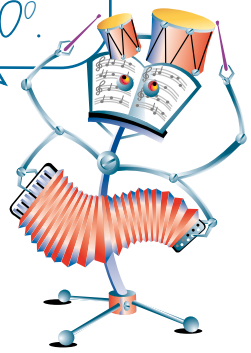


Read the number for this arm to tell the angle size. (60°)

One arm is along the base line. (0°)

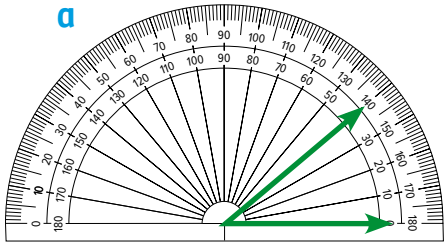
The vertex is at the centre point.

An angle is measured in degrees. 50 degrees is written as 50°.

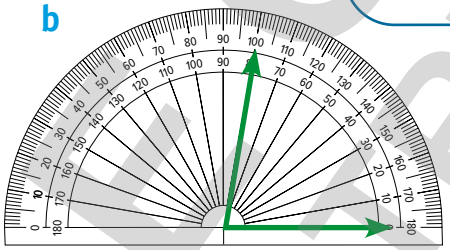


1 Write the size of each angle.

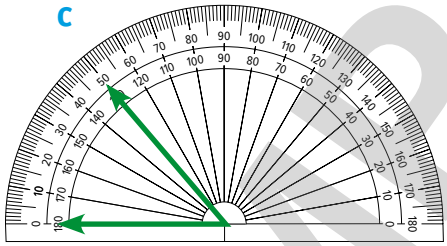
a



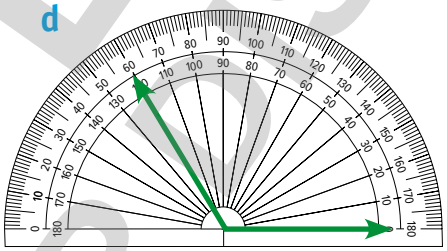
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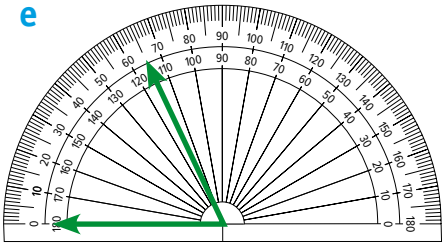
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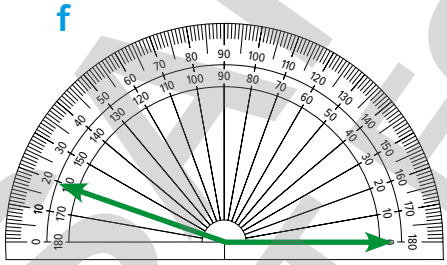
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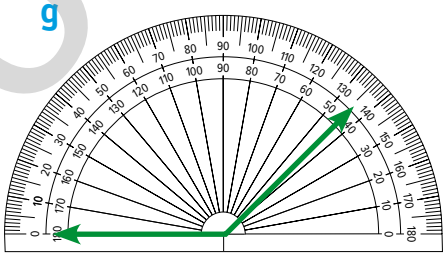
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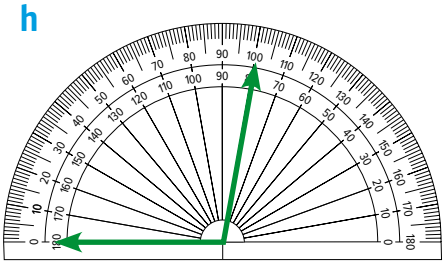
f



g



h



Challenge! Work with a friend. Look around and use your protractor to find:

a 3 angles less than 40°.
b 3 angles between 40° and 90°.
c 3 angles of 90°.
d 3 angles more than 90°.

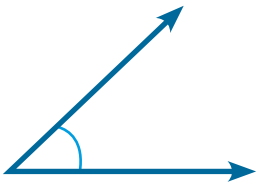
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Using a protractor

estimate and measure to check

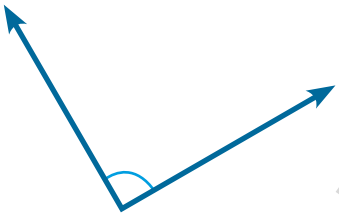
1 Estimate the size of each angle. Then measure it accurately.

a



Est. _____ Actual _____

b



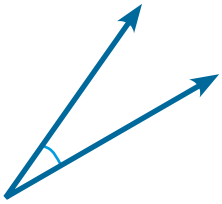
Est. _____ Actual _____

c



Est. _____ Actual _____

d



Est. _____ Actual _____

e



Est. _____ Actual _____

f



Est. _____ Actual _____

use a protractor

2 Use a protractor to draw each angle.

a 35°

b 130°

c 116°

d 68°

Mastery Checklist

I can:
- ☐ identify and draw the types of angles: acute, right, obtuse, straight and reflex
- ☐ identify the vertex and arms of an angle
- ☐ identify types of triangle by their angles
- ☐ measure and draw angles using a 180° protractor

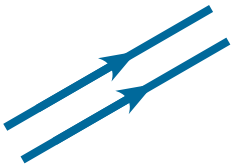
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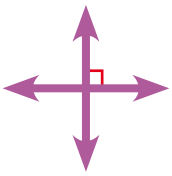
Lines and shapes

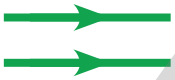
Perpendicular lines meet at right angles.



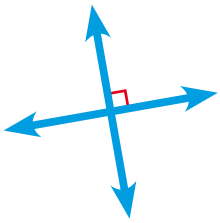
1 Circle the perpendicular lines.

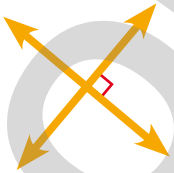
a 

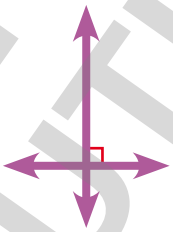
b 

c 

d 

e 

f 

g 

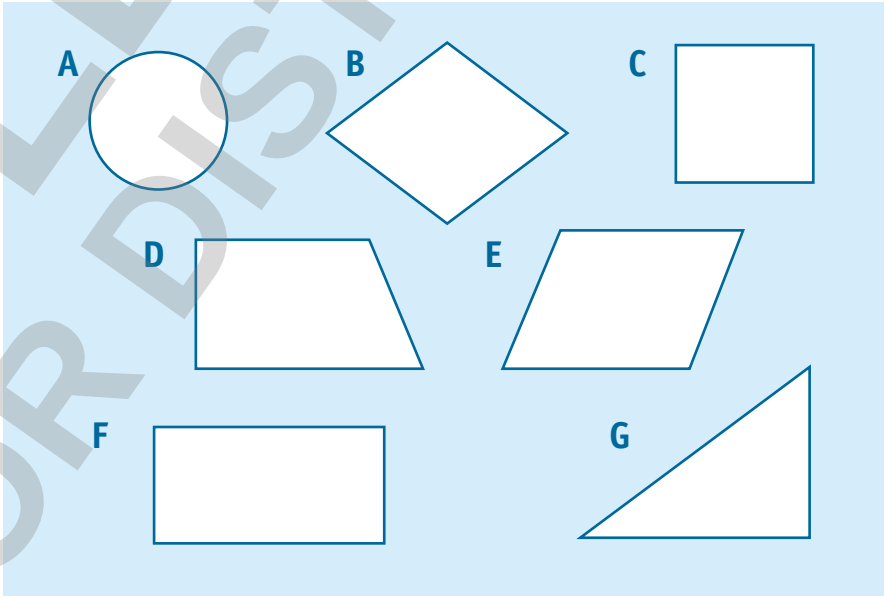
2 a Tick the parallel lines.

b What are parallel lines? _____

_____

3 Match each shape to its name.

Name	Shape
circle	A
square	
rhombus	
parallelogram	
triangle	
rectangle	
trapezium	



4 a Which shapes have perpendicular sides? Tick the right angles.

b Which shapes have parallel sides? Trace the parallel lines.

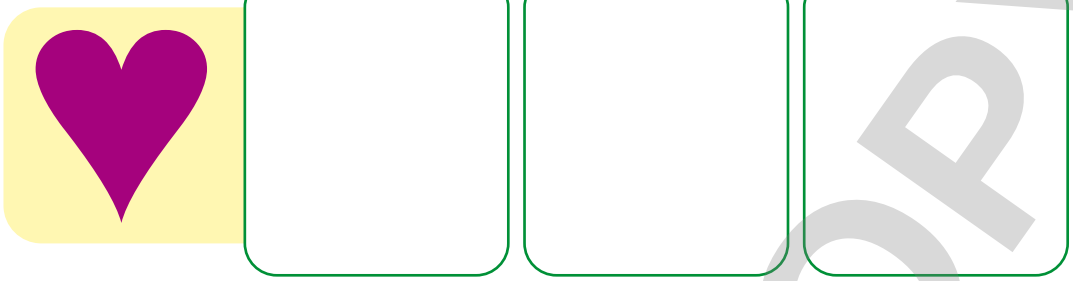
c Which shapes have both? _____

Challenge! Can you draw shapes with 5, 6 or 8 sides that have both parallel and perpendicular lines?

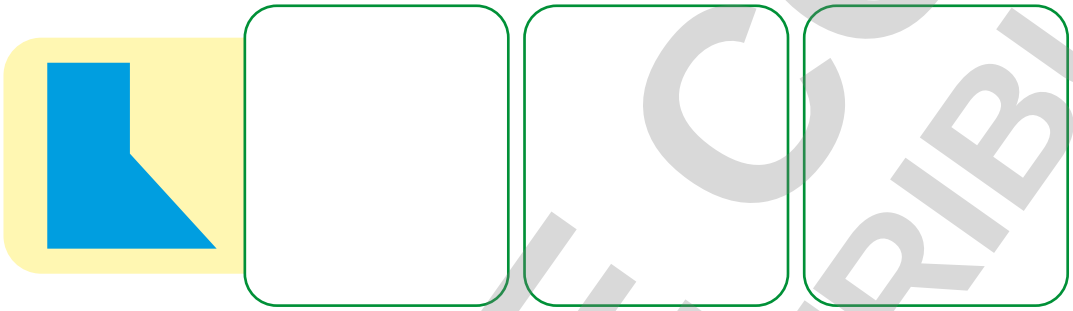
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Transformations

1 Translate (slide) this shape three times.

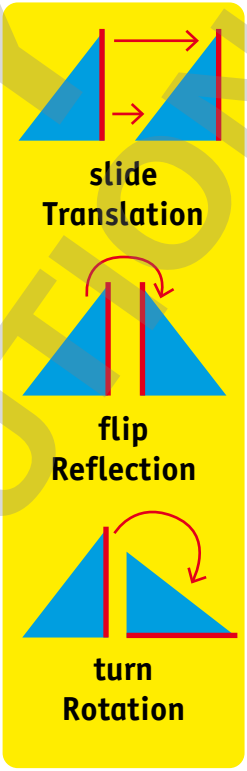


2 Reflect (flip) this shape three times.



3 Rotate (turn) this shape three times.



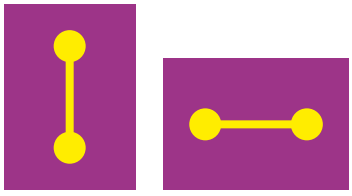


4 What has been used to transform these shapes?

a



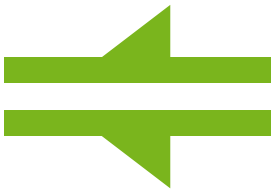
b



c



d



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Geometry Spatial reasoning: Describing the transformations performed (reflections, translations, rotations) on 2D shapes

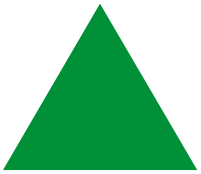
Tessellating shapes

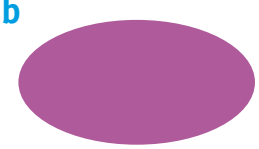
Tessellating shapes fit together without any gaps or overlaps.



Squares tessellate.

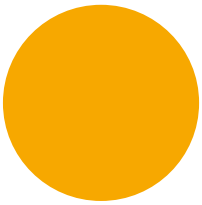
1 Circle the shapes that will tessellate.

a 

b 

c 

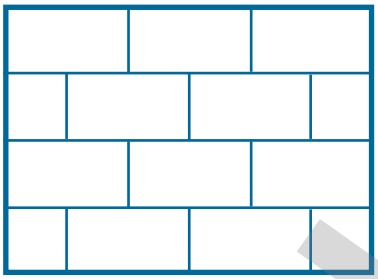
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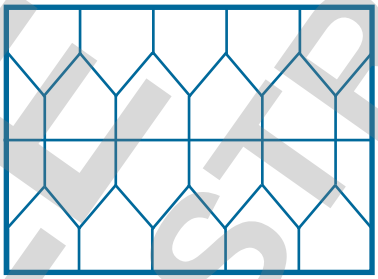
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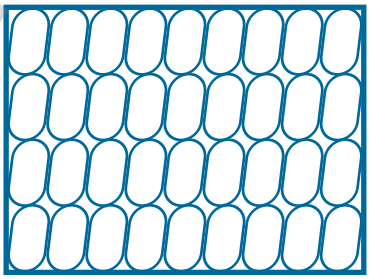
f 

g 

2 Colour the patterns made with tessellating shapes.

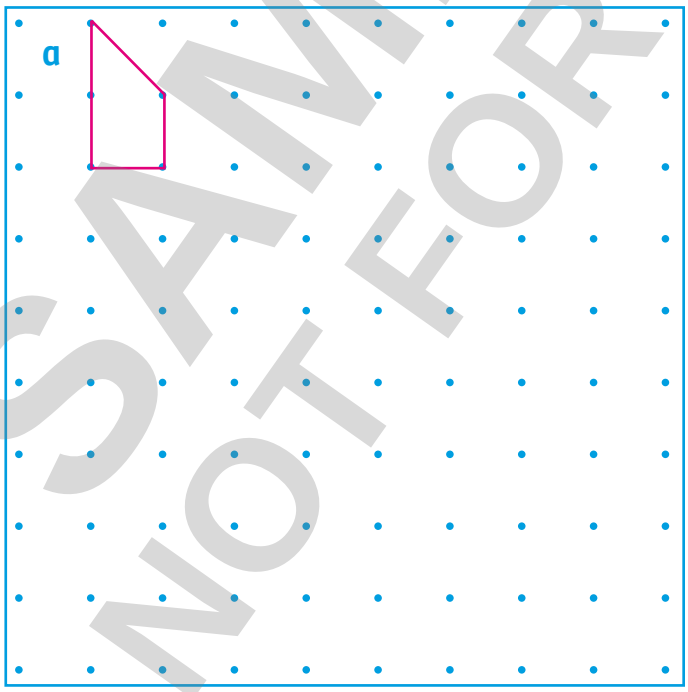
a 

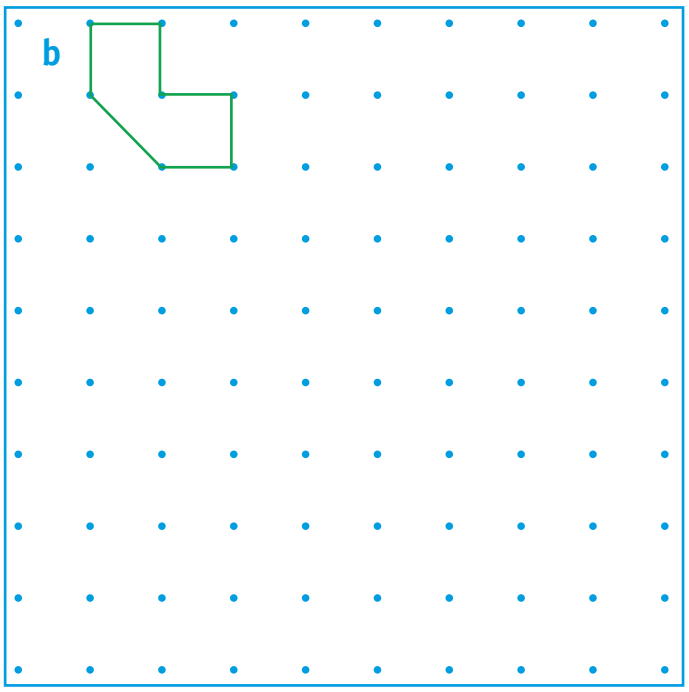
b 

c 

3 Were the above tessellations made using translation, reflection or rotation? _____

4 Draw your own tessellating patterns using the given shapes. Use reflection and rotation.

a 

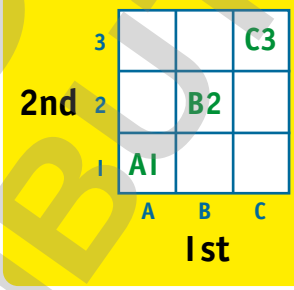
b 

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Grids



To read a grid reference, read the column (bottom) first then the row (side).



1 Write the position of the:

a backpack. _____ b lantern. _____ c teddy bear. _____

d books. _____ e painting. _____ f soccer ball. _____

g mug. _____ h clock. _____ i globe. _____

2 Draw:

a a pencil in C1. b a spoon in A4. c an eggcup in E2.

d a cup in B5. e a bed in D4. f a book in B3.

g a mat in A1. h a jug in C3. i a broom in C4.

3 Name all the blank spaces.

_____

Challenge!

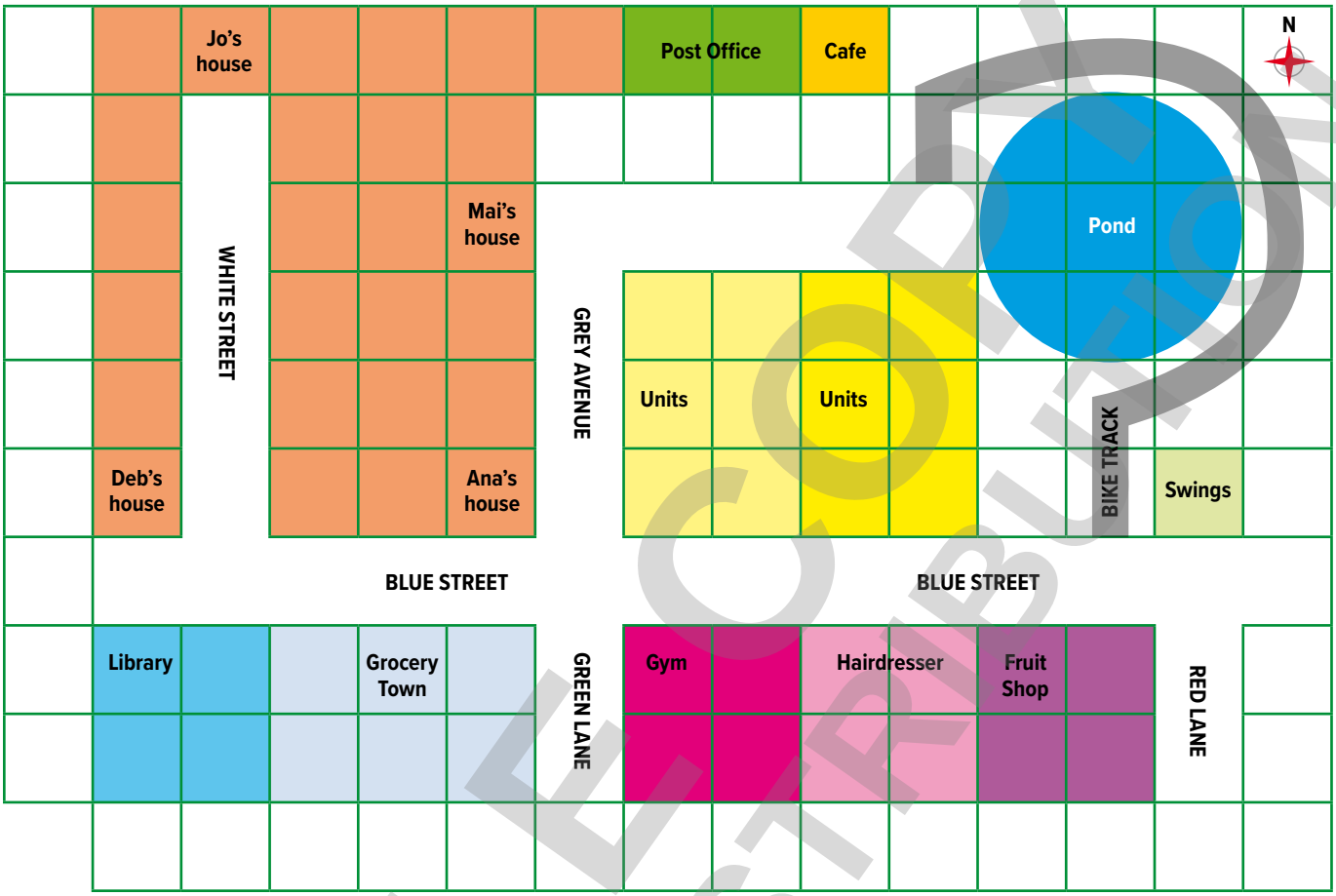
Use centimetre grid paper. Outline an 8 × 8 grid and label the rows and columns.
Draw 10 symbols (e.g. ● ■ ✱) on the grid.
Swap with a friend. Name the position of each symbol on your friend's grid.

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Geometry Pathways: Interpreting grid maps to plot positions, using grid references; An alphanumeric grid reference is a system that divides a map into labelled rows (letters) and columns (numbers), so that each square can be identified by combining a letter and a number

Grid maps

TERM 4
Week 7



1 Write the letters **A** to **N** along the bottom. Write the numbers **1** to **9** up the side to complete the grid.

2 Write the grid reference for these places.

a Deb's house _____ b Cafe _____ c Swings _____

3 What is located at each grid reference?

a A2 _____ b G1 _____

c L7 _____ d G5 _____

4 Complete the directions.

Ana leaves her house and hops on her bike. She rides north up _____ and then follows the road to go _____. At the end of the road, she goes onto the _____ and follows it around the _____. At the end of the track she rides _____ on _____ back to home.

Mastery Checklist

I can:
- ☐ identify parallel and perpendicular lines, including in polygons
- ☐ identify and complete transformations on 2D shapes, including tessellation
- ☐ identify coordinates, plot position and follow directions on a grid

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Litres

baby's bottle



bottle



bucket



Estimating capacity

Use these benchmarks to estimate capacity.

- **A drink bottle holds about 1 litre.**
- **A bucket holds about 10 litres.**
- **A bath holds about 150 litres.**

Estimate first, then check whether your answer is reasonable.

cup



glass



soup can



bath





sauce pack



drink bottle



mug



watering can

1 Estimate the capacity. Write the capacity you think each container holds.

Container	Estimate	Container	Estimate
baby's bottle	mL	cup	mL
mug	mL	glass	mL
bottle	L	drink bottle	L
soup can	mL	watering can	L
large jug	L	bath	L

2 Which unit would you use? Write mL or L.

a a baby's bottle _____ b a bath _____ c a watering can _____

d a can of soup _____ e a sauce pack _____ f a mug _____

3 Name:

a two things that usually hold less than 1 litre

_____

_____

b two things that usually hold more than 10 litres

_____

_____

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Measurement Measuring: Accurately measuring capacity with measuring jugs, using appropriate metric units or a combination of units

Millilitres

measure capacity

L = litre
mL = millilitre
1 L = 1,000 mL

TERM 4
Week 8

1 Write as litres.

a 2,000 mL _____ b 7,000 mL _____ c 5,000 mL _____ d 9,000 mL _____

2 Write as millilitres.

a 3 L _____ b 6 L _____ c 8 L _____ d 10 L _____ e 4 L _____

3 Write as litres and millilitres.

a 2,500 mL 2 L 500 mL b 3,200 mL _____

c 1,700 mL _____ d 5,850 mL _____

e 6,120 mL _____ f 8,225 mL _____

4



A B C D E F

a Which bottle holds the most? _____ b Which bottle holds the least? _____

c How much more to make 1 litre? Bottle A _____ Bottle E _____

5 How many mL in:

a 1·5 L? _____ b 7·5 L? _____ c 2·25 L? _____ d 4·25 L? _____



Make your own measure

You need an empty, large bottle, a 100 mL measure and a marker pen.

Pour 100 mL of water into the bottle.

Mark the level with the pen. Write 100 mL next to the mark.

Keep adding 100 mL at a time and mark each new level (200 mL, 300 mL etc.) until you reach 1,000 mL.

Use your bottle to measure quantities up to 1 L.

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Measuring capacity

experiment with capacity

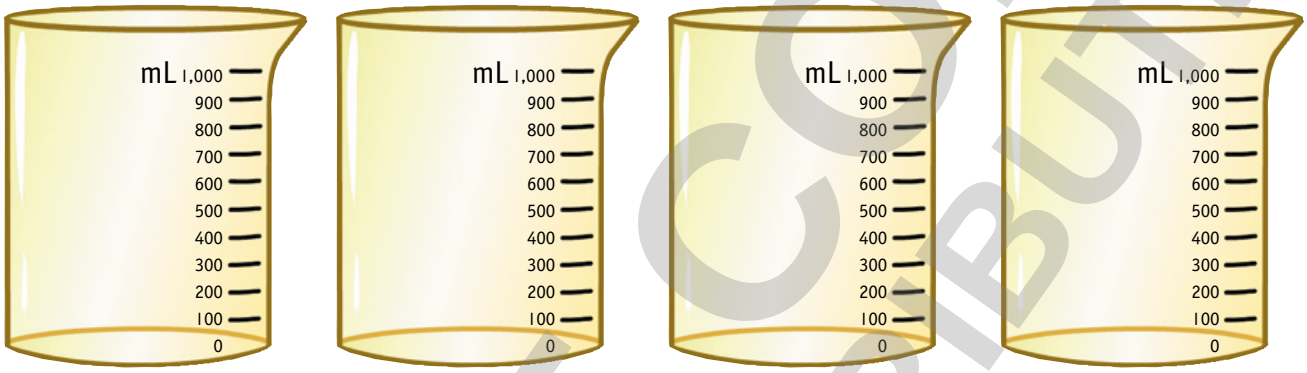
1 Would you use litres or millilitres to measure:

a a cup of tea? _____ b water in a pool? _____

c a dose of medicine? _____ d milk in a baby's bottle? _____

e ice-cream in a large tub? _____ f petrol in a tank? _____

2 Draw a line and colour to show the amount given.



500 mL 200 mL 900 mL 650 mL

3 Fill an ice-cream container to the brim with water. Place it in a larger bowl. Choose an object (e.g. a large stone) and place it in the ice-cream container. Measure how much water overflowed. Repeat with two different objects.



Objects	Overflow in mL
a	
b	
c	

d Which object had: most overflow? _____ least overflow? _____



4 Half fill a clear container with water. Use the three objects from question 3. Place them one at a time into the container. Mark the level of water each time. Which object increased the level:

a most? _____ b least? _____

5 What did you notice about the amount of overflow and the rise in the water level?

_____

_____

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Measurement Measuring: Accurately measuring capacity with measuring jugs, using appropriate metric units or a combination of units

In the laboratory



1 Professor Dinkum Thinkum has just mixed her favourite potion, which she will only give to special friends and family. She has exactly one litre (1 L). She wants to give her son twice as much as her daughter, but only half as much as she has herself. Three of her friends will share the rest.

How much potion will everyone receive? Use millilitres.

	Guess 1	Guess 2	Guess 3
Clever Son	_____	_____	_____
Bright Daughter	_____	_____	_____
Prof. Dinkum Thinkum	_____	_____	_____
Friend 1	_____	_____	_____
Friend 2	_____	_____	_____
Friend 3	_____	_____	_____
	Total = _____	Total = _____	Total = _____

2 Clever Son has to take 1 L of his famous jelly juice to school, but he only has a 3 L jug and a 5 L bucket. How can he measure exactly 1 L using these two containers?

_____

_____

_____

_____

_____

3 Bright Daughter made 2 L of Grow-Up-Fast drink and 3 L of Shrinking Milk. She sells 200 mL bottles of Grow-Up-Fast drink for $3 each and 250 mL bottles of Shrinking Milk for $2 a bottle. Which one will make her the most money?

_____

_____

_____

_____

_____

I can solve problems by:

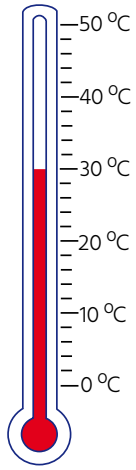
☐ understanding capacity ☐ measuring and using logical thinking

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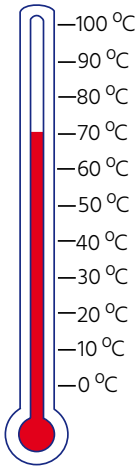
Temperature

1 Record the temperatures shown on each thermometer. Look carefully at the scale.

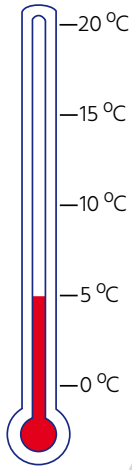
a



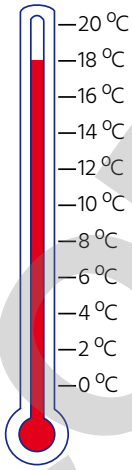
b



c



d



Temperature is how hot or cold something is. You read **20 °C** as 20 degrees Celcius.



2 Write things you know that match each temperature.

freezing cold cool warm hot boiling

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

3 Place these temperatures in order from coldest to hottest.

a 34 °C, 18 °C, 24 °C, 12 °C _____

b 16 °C, 4 °C, 0 °C, 11 °C _____

4 For each day, what temperature could it be?







Challenge!

Research the normal temperature for a healthy child.

Mastery Checklist

I can:
- ☐ compare capacities in litres and millilitres
- ☐ use mL and L
- ☐ measure and record capacity
- ☐ measure and record temperature

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Review • Number

1 Use the digits **0, 1, 2, 3, 4, 5, 6, 7 and 9** once each to make **six different numbers** that:

- have 7 in the ten-thousands place
- have 2 in either the tenths or hundredths place.

2 Write three of your numbers in expanded form, e.g. 90,000 + 7,000 + 400 + 60 + 0·2.

a

b

c

3 Write three of your own numbers in words.

a

b

c

4 Put your numbers in order from smallest to largest.

5 Round each number in your list to the nearest thousand.

6 Round each number in your list to the nearest ten thousand.

7 Complete the number lines.

a



b





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Review • Operations

TERM 4
Week 9

1 **a** Multiply by 8

Number	× 8
14	
27	
36	
45	
58	
62	
79	
84	

b Divide by 6

Number	÷ 6
48	
72	
96	
54	
84	
108	
66	
120	

c Multiply by 12

Number	× 12
11	
15	
24	
32	
18	
25	
14	
40	

2 Work out the missing numbers. Show your working.

a 6,472 + ☐ = 9,815

☐ = _____

b ☐ − 2,738 = 5,904

☐ = _____

c 8,736 ÷ ☐ = 104

☐ = _____

3 Calculate. Use an efficient strategy.

a 347 × 8 = _____ **b** 624 × 17 = _____ **c** 2,856 ÷ 7 = _____

4 Solve the problems.

a A school bought 18 boxes of pencils. Each box contained 24 pencils. How many pencils were bought altogether?

_____

b A sports club collected $4,875. The money was shared equally between 5 teams. How much did each team receive?

_____

5 Multi-step problems.

a A farmer collected 245 eggs each week for 8 weeks. He sold 1,560 eggs. How many eggs did he have left?

_____

b A library had 3,850 books. It bought another 675 books and then donated 420 books. How many books does the library have now?

_____

6 Calculate.

a 8 × 6 + 12
= _____

b 90 ÷ 9 + 14
= _____

c 7 × 5 − 18
= _____

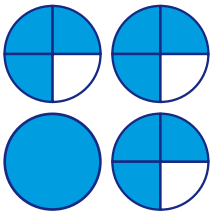
d 48 ÷ 6 × 4
= _____

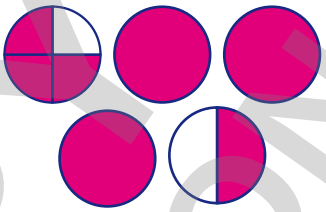
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Review • Rational numbers

1 Write the mixed numbers.







a Mixed number = _____ **b** Mixed number = _____ **c** Mixed number = _____

2 Write as improper fractions.

a $2\frac{1}{2}$ = _____ **b** $3\frac{3}{4}$ = _____ **c** $4\frac{1}{5}$ = _____ **d** $5\frac{2}{3}$ = _____

3 Complete the table.

Fraction	Decimal	Percentage
$\frac{1}{2}$		
$\frac{1}{4}$		
$\frac{3}{4}$		
$\frac{1}{5}$		
$\frac{9}{10}$		
$\frac{3}{5}$		

4 Find equivalent fractions

a $\frac{1}{2} = \frac{\square}{8}$ **b** $\frac{3}{4} = \frac{\square}{12}$

c $\frac{2}{5} = \frac{\square}{20}$ **d** $\frac{3}{10} = \frac{\square}{100}$

5 Write from smallest to largest.

a $\frac{1}{2}$ 0·4 75% 0·8 25%

_____

b 0·3 $\frac{1}{4}$ 40% $\frac{3}{5}$ 0·75

_____

6 Place the numbers on the number line.

$\frac{1}{4}$ 0·5 75% 0·9



7 Find the percentage.

a 25% of 80 _____ **b** 50% of 240 _____ **c** 10% of 650 _____ **d** 75% of 40 _____

8 Problem solving.

a A class has 32 students.
25% play football.
How many students play football?
Answer: _____

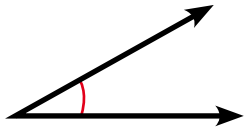
b A shop sold 120 drinks.
40% were juice.
How many juice drinks were sold?
Answer: _____

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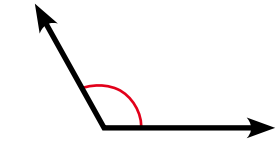
Review • Geometry

1 Identify the angle type. Write: **acute, right, obtuse, straight** or **reflex**

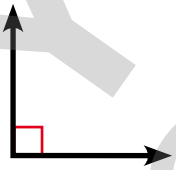
A



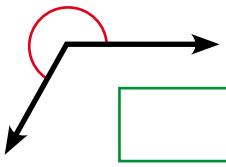
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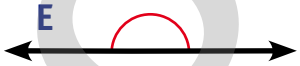
C



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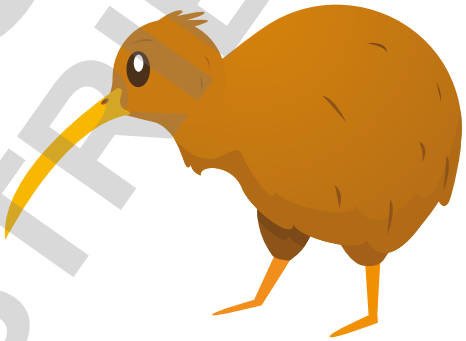


E



2 Estimate each angle. Then measure it using a protractor.

Angle	Estimate	Measurement
A	°	°
B	°	°
D	°	°



3 Draw the angles. Use a protractor.

a Draw an angle of 45°.

b Draw an angle of 90°.

c Draw an angle of 135°.

d Draw a reflex angle greater than 180°.

4 Classify the triangles. Write: **acute-angled triangle, right-angled triangle** or **obtuse-angled triangle**

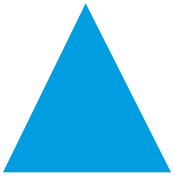
a



b



c



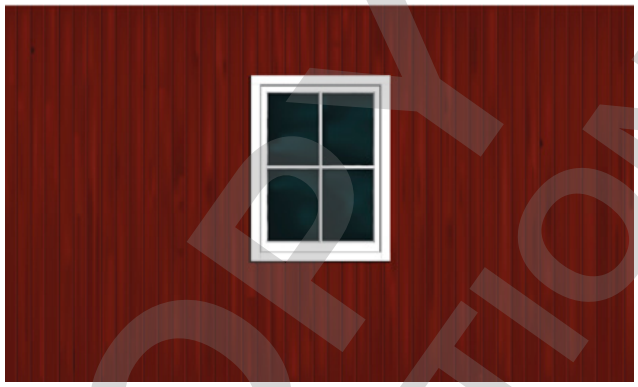
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Review • Measurement

A wall is to be painted and decorated.

Wall dimensions: Length = 8 m
Height = 3 m

Window dimensions: Length = 1·5 m
Height = 2 m



1 Find the area of the wall.

Area = _____ m²

2 Find the area of the window.

Area = _____ m²

3 What is the area of the wall that needs to be painted?

Area to be painted = _____ m².

4 One tin of paint covers 6 m².
How many tins of paint are needed?

Answer: _____ tins

5 Calculate the cost.
Each tin of paint costs $24.90.
How much will the paint cost?

Working: _____

Answer: $ _____

6 The wall needs two coats of paint.
How many tins are needed now?

Answer: _____ tins

How much will the paint cost now?

New cost: $ _____

7 A curtain will cover the window.
The curtain is: 2.4 m wide and 2 m long.
Find the area of fabric needed.

Answer: _____ m²

8 Fabric costs $18.50 per square metre.
How much will the fabric cost?

Answer: $ _____

9 Decorative trim is placed around the outside of the window.
Find the perimeter of the window.

Answer: _____ m

10 The trim costs $4.80 per metre.
How much will the trim cost?

Answer: $ _____

11 Total decorating cost. Add together:

- paint cost for two coats
- curtain fabric cost
- window trim cost

Total cost = $ _____



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Checkpoint 8

1 a

H	T	O
1	8	7
×		6

b

H	T	O
2	5	9
×		8

p 119

2 a 317 × 3 = _____ **b** 197 × 5 = _____ p 120

3 p 132

a 2) 58 **b** 4) 92 **c** 7) 84

4 p 16

a 7 ÷ 10 = _____

b 6 ÷ 100 = _____

c 9 × 10 = _____

d 8 × 100 = _____

5 a Write three multiples of 9.

_____ _____ _____

p 56

b Write three multiples of 11.

_____ _____ _____

6 p 150

a 75 − 37 = _____ **b** 93 − 68 = _____ **c** 64 − 19 = _____

7 Complete. p 30

a

−		
64	16	
30	14	

b

−		
53	27	
34	8	

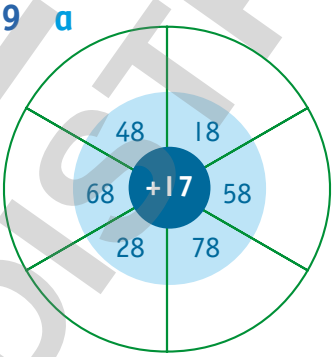
8 Alastair had $74 saved but he spent $49 on a chess set. How much did he have left? p 30

_____

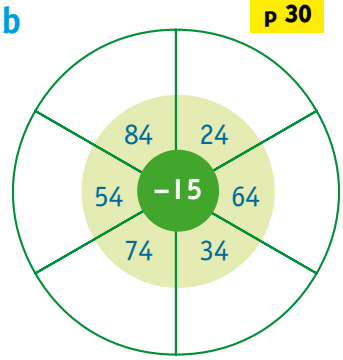


9 p 30

a



b



10 Add, then subtract to check your answer. p 34-36

a 264 + 658 = _____ − _____ = _____

b 487 + 250 = _____ − _____ = _____

11 p 31

?	380
975	

? = _____

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Checkpoint 8

12 This is a calculator display. p 7



What would you add to make the:

a 5 a 7? _____

b 6 a 9? _____

What would you subtract to make the:

c 2 a 0? _____

d 9 a 4? _____

13 If you add 7 and 8 to any number, then subtract 9 and take away 6, why do you end up with the number you started with? p 29

_____

_____

14 Match equivalent fractions by joining with a line. p 70-71

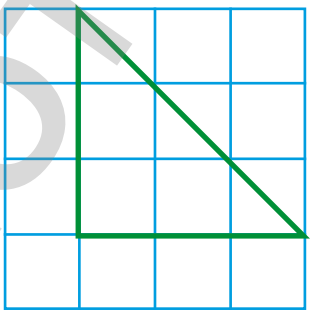
$\frac{5}{10}$	$\frac{10}{10}$
$\frac{3}{5}$	0·6
0·8	$\frac{80}{100}$
$\frac{90}{100}$	0·9
1·0	0·7
$\frac{70}{100}$	$\frac{1}{2}$

15 Circle the tenths numeral. p 6

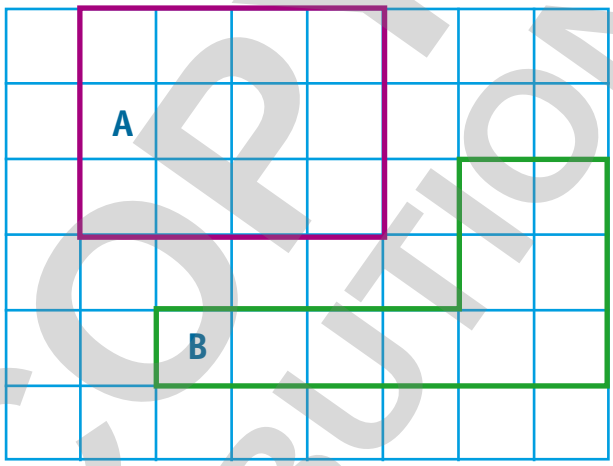
a 4·78 **b** 62·09

16 What is the area of the triangle? p 113

_____



17 These are 1 cm squares. p 114, 116



a Area A = _____ **b** Perimeter A = _____

c Area B = _____ **d** Perimeter B = _____

18 Would you use m^2 or cm^2 to find the area of: p 110

a your garden? _____

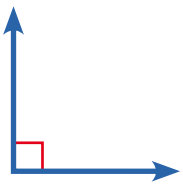
b this page? _____

c a book cover? _____

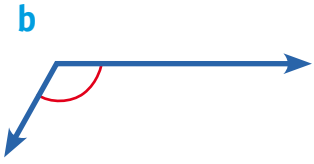
d the playground? _____

19 Colour the acute angles blue, the obtuse angles red and the right angles yellow. p 174

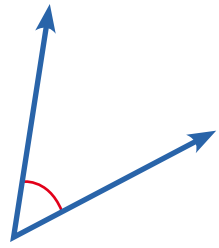
a



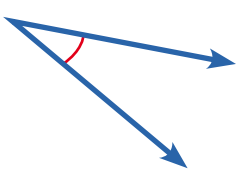
b



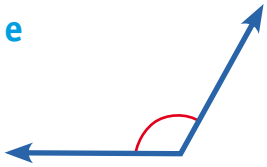
c



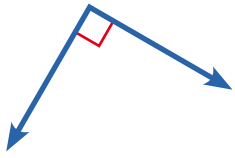
d



e



f



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Checkpoint 8

20 p 151



• $149



• $399



• $658

What is the total cost of:

a shoes and a watch? _____

b microwave and watch? _____

c microwave and shoes? _____

d shoes, microwave and watch? _____

21 Estimate first then add. p 34

a
$$\begin{array}{r} 317 \\ 54 \\ +\ 2648 \\ \hline \\ \hline \end{array}$$
Est. _____

b
$$\begin{array}{r} 8607 \\ 98 \\ +\ 4253 \\ \hline \\ \hline \end{array}$$
Est. _____

22 p 118

a $68 \times 9 =$ _____ b $290 \times 6 =$ _____ c $681 \times 7 =$ _____

23 p 77

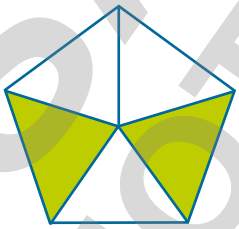
	49	35	56	77	14	84	63
÷ 7							

24 p 83

a $7\overline{)426}$ b $4\overline{)909}$

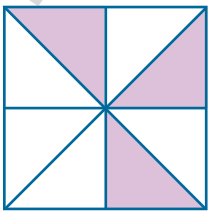
25 Name the coloured fraction. p 19

a



_____

b



_____

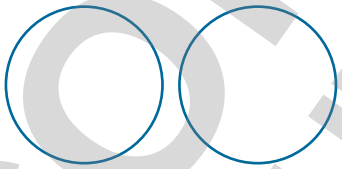
26 Circle the equivalent fractions. p 23

a $\frac{2}{3}$, $\frac{4}{6}$, $\frac{3}{4}$

b $\frac{1}{4}$, $\frac{4}{8}$, $\frac{2}{4}$

27 Colour: p 19

a



$1\frac{1}{4}$

b



$2\frac{1}{2}$

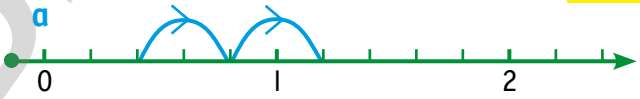
28 Write the missing values. p 58

a $22 \times 5 =$ ___ $\times 10$ b $12 \times$ ___ $= 2 \times 60$

c $75 \div 5 =$ ___ $\times 3$ d $144 \div 12 = 24 \div$ ___

29 Continue the pattern. Write the rule. p 4-5

a



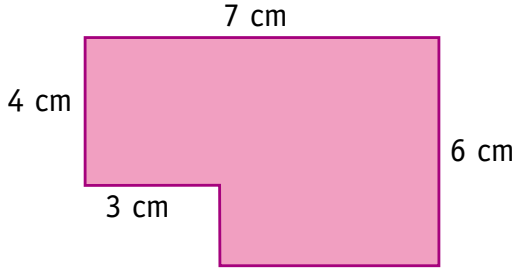
_____

b



_____

30 Find the perimeter and area. p 113, 116



P = _____

A = _____

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Checkpoint 8

31 What measurement would you use to measure: p 43

a the mass of a mouse? _____

b the mass of a truck? _____

c the mass of a person? _____

d the mass of a phone? _____

e the mass of an elephant? _____

32 Change to grams. p 44

a 7 kg _____

b $10\frac{1}{2}$ kg _____

33 Use g or kg. p 44

a The mass of a dog is 15 _____.

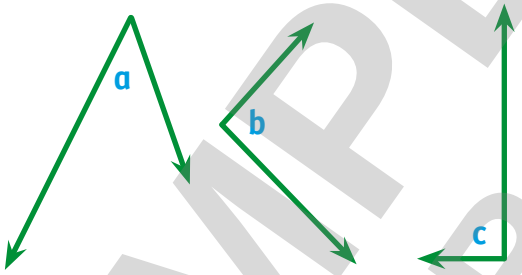
b The mass of a box is 1 _____.

c The mass of a pencil is 10 _____.

d The mass of 1 L of water is 1 _____.

34 Measure these angles. p 175

a _____ b _____ c _____



35 Draw these angles. p 175

a obtuse b acute c right

d 90° e 110°

36 Label each triangle. p 174

a



This triangle is a _____ triangle.

b



This triangle is a _____ triangle.

c



This triangle is a _____ triangle.

37 Write as millilitres (mL). p 183

a 7·5 L _____ b 12 L _____

38 Write as litres (L). p 183

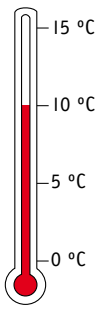
a 2,000 mL _____ b 8,500 mL _____

39 Would you use L or mL to measure the volume of: p 182

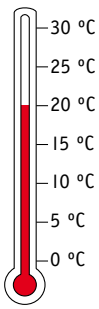
a a teapot? _____ b a bath? _____

40 Write the temperature shown on each thermometer. Don't forget the units. p 186

a



b



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Fast facts

×2, ×5, ×10

5 × 2 = _____	10 × 2 = _____	1 × 2 = _____	3 × 10 = _____	10 × 2 = _____
4 × 5 = _____	2 × 5 = _____	3 × 5 = _____	5 × 10 = _____	2 × 2 = _____
5 × 10 = _____	4 × 10 = _____	2 × 2 = _____	3 × 2 = _____	10 × 10 = _____
5 × 2 = _____	2 × 5 = _____	6 × 5 = _____	5 × 5 = _____	6 × 10 = _____
1 × 10 = _____	3 × 5 = _____	10 × 5 = _____	9 × 10 = _____	4 × 2 = _____
8 × 5 = _____	7 × 5 = _____	9 × 5 = _____	7 × 10 = _____	4 × 5 = _____
2 × 4 = _____	8 × 10 = _____	8 × 2 = _____	6 × 2 = _____	7 × 5 = _____
9 × 2 = _____	5 × 2 = _____	3 × 2 = _____	8 × 10 = _____	5 × 5 = _____

÷2, ÷5, ÷10

2 ÷ 2 = _____	10 ÷ 2 = _____	30 ÷ 2 = _____	50 ÷ 10 = _____	8 ÷ 2 = _____
50 ÷ 5 = _____	60 ÷ 10 = _____	25 ÷ 5 = _____	12 ÷ 2 = _____	4 ÷ 2 = _____
90 ÷ 10 = _____	10 ÷ 10 = _____	16 ÷ 2 = _____	10 ÷ 2 = _____	10 ÷ 10 = _____
20 ÷ 2 = _____	70 ÷ 10 = _____	10 ÷ 5 = _____	14 ÷ 2 = _____	40 ÷ 5 = _____
35 ÷ 5 = _____	10 ÷ 5 = _____	80 ÷ 10 = _____	30 ÷ 10 = _____	18 ÷ 2 = _____
15 ÷ 5 = _____	45 ÷ 5 = _____	20 ÷ 5 = _____	6 ÷ 2 = _____	14 ÷ 2 = _____
16 ÷ 2 = _____	100 ÷ 10 = _____	20 ÷ 10 = _____	4 ÷ 2 = _____	70 ÷ 10 = _____
6 ÷ 2 = _____	30 ÷ 10 = _____	30 ÷ 5 = _____	16 ÷ 2 = _____	40 ÷ 10 = _____

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Fast facts

×3, ×4, ×8

5 × 3 = _____	3 × 3 = _____	3 × 6 = _____	1 × 3 = _____	4 × 4 = _____
1 × 4 = _____	3 × 4 = _____	5 × 4 = _____	8 × 6 = _____	8 × 1 = _____
3 × 2 = _____	5 × 8 = _____	2 × 4 = _____	3 × 8 = _____	6 × 4 = _____
8 × 4 = _____	0 × 8 = _____	7 × 4 = _____	3 × 0 = _____	2 × 8 = _____
4 × 5 = _____	7 × 8 = _____	7 × 3 = _____	10 × 3 = _____	4 × 6 = _____
9 × 4 = _____	8 × 9 = _____	4 × 0 = _____	11 × 3 = _____	8 × 8 = _____
6 × 3 = _____	10 × 4 = _____	8 × 5 = _____	3 × 7 = _____	6 × 8 = _____
8 × 10 = _____	12 × 4 = _____	9 × 3 = _____	3 × 5 = _____	9 × 8 = _____

÷3, ÷4, ÷8

15 ÷ 3 = _____	9 ÷ 3 = _____	8 ÷ 8 = _____	40 ÷ 4 = _____	12 ÷ 4 = _____
8 ÷ 4 = _____	16 ÷ 4 = _____	6 ÷ 3 = _____	24 ÷ 8 = _____	3 ÷ 3 = _____
40 ÷ 8 = _____	12 ÷ 3 = _____	80 ÷ 8 = _____	16 ÷ 8 = _____	24 ÷ 4 = _____
20 ÷ 4 = _____	32 ÷ 8 = _____	30 ÷ 3 = _____	21 ÷ 3 = _____	4 ÷ 4 = _____
48 ÷ 8 = _____	24 ÷ 3 = _____	27 ÷ 3 = _____	28 ÷ 4 = _____	88 ÷ 8 = _____
36 ÷ 4 = _____	64 ÷ 4 = _____	32 ÷ 4 = _____	56 ÷ 8 = _____	18 ÷ 3 = _____
72 ÷ 8 = _____	33 ÷ 3 = _____	48 ÷ 4 = _____	40 ÷ 10 = _____	16 ÷ 2 = _____
36 ÷ 3 = _____	15 ÷ 5 = _____	30 ÷ 10 = _____	80 ÷ 10 = _____	44 ÷ 4 = _____

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Fast facts

Multiply by 7, 8, 9

3 × 7 = _____	5 × 9 = _____	5 × 8 = _____	2 × 7 = _____	2 × 9 = _____
7 × 8 = _____	6 × 9 = _____	4 × 8 = _____	7 × 7 = _____	9 × 7 = _____
9 × 8 = _____	3 × 9 = _____	10 × 9 = _____	9 × 9 = _____	3 × 8 = _____
5 × 7 = _____	4 × 7 = _____	6 × 8 = _____	4 × 9 = _____	10 × 7 = _____
0 × 7 = _____	10 × 8 = _____	1 × 9 = _____	7 × 3 = _____	7 × 5 = _____
8 × 9 = _____	1 × 7 = _____	8 × 8 = _____	9 × 6 = _____	8 × 4 = _____
2 × 8 = _____	6 × 7 = _____	9 × 2 = _____	1 × 8 = _____	9 × 9 = _____
8 × 7 = _____	7 × 9 = _____	0 × 9 = _____	8 × 5 = _____	7 × 7 = _____

Divide by 7, 8, 9

49 ÷ 7 = _____	27 ÷ 9 = _____	80 ÷ 8 = _____	35 ÷ 7 = _____	36 ÷ 9 = _____
16 ÷ 8 = _____	18 ÷ 9 = _____	56 ÷ 8 = _____	28 ÷ 7 = _____	70 ÷ 7 = _____
64 ÷ 8 = _____	81 ÷ 9 = _____	63 ÷ 9 = _____	45 ÷ 9 = _____	48 ÷ 8 = _____
21 ÷ 7 = _____	63 ÷ 7 = _____	32 ÷ 8 = _____	90 ÷ 9 = _____	42 ÷ 7 = _____
7 ÷ 7 = _____	24 ÷ 8 = _____	72 ÷ 9 = _____	14 ÷ 7 = _____	54 ÷ 9 = _____
40 ÷ 8 = _____	99 ÷ 9 = _____	56 ÷ 7 = _____	9 ÷ 9 = _____	72 ÷ 8 = _____
24 ÷ 3 = _____	8 ÷ 8 = _____	77 ÷ 7 = _____	88 ÷ 8 = _____	35 ÷ 5 = _____
36 ÷ 4 = _____	45 ÷ 5 = _____	42 ÷ 6 = _____	18 ÷ 2 = _____	21 ÷ 3 = _____

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Fast facts

Calculating with multiples of 10

4 × 20 = ____	7 × 60 = ____	3 × 70 = ____	6 × 40 = ____	2 × 30 = ____
8 × 40 = ____	9 × 20 = ____	5 × 80 = ____	7 × 50 = ____	6 × 30 = ____
5 × 200 = ____	6 × 400 = ____	3 × 300 = ____	6 × 200 = ____	8 × 300 = ____
2 × 400 = ____	7 × 300 = ____	9 × 200 = ____	2 × 700 = ____	8 × 100 = ____
150 ÷ 5 = ____	240 ÷ 8 = ____	40 ÷ 2 = ____	180 ÷ 9 = ____	270 ÷ 3 = ____
250 ÷ 5 = ____	160 ÷ 4 = ____	60 ÷ 3 = ____	490 ÷ 7 = ____	540 ÷ 6 = ____
120 ÷ 4 = ____	320 ÷ 8 = ____	90 ÷ 3 = ____	450 ÷ 9 = ____	210 ÷ 7 = ____
280 ÷ 4 = ____	360 ÷ 6 = ____	100 ÷ 5 = ____	560 ÷ 8 = ____	630 ÷ 7 = ____

Multiply and divide decimals

2.4 × 10 = ____	3.7 × 10 = ____	5.8 × 10 = ____	9.1 × 10 = ____	4.6 × 10 = ____
7.3 × 10 = ____	8.2 × 10 = ____	1.5 × 10 = ____	6.9 × 10 = ____	5.4 × 10 = ____
2.8 × 10 = ____	9.6 × 10 = ____	4.1 × 10 = ____	7.7 × 10 = ____	6.3 × 10 = ____
8.9 × 10 = ____	3.2 × 10 = ____	5.6 × 10 = ____	1.8 × 10 = ____	7.4 × 10 = ____
93 ÷ 10 = ____	27 ÷ 10 = ____	65 ÷ 10 = ____	49 ÷ 10 = ____	81 ÷ 10 = ____
36 ÷ 10 = ____	52 ÷ 10 = ____	68 ÷ 10 = ____	97 ÷ 10 = ____	21 ÷ 10 = ____
84 ÷ 10 = ____	59 ÷ 10 = ____	13 ÷ 10 = ____	47 ÷ 10 = ____	72 ÷ 10 = ____
99 ÷ 10 = ____	25 ÷ 10 = ____	61 ÷ 10 = ____	88 ÷ 10 = ____	34 ÷ 10 = ____

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Mathletics

How impressive!

Ka wani kē!

You did great work to complete Year 5!



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