

Number: calculator skills

- (1) Use your calculator to work out 5.1×3.4 or $\frac{17.34}{5.1}$ or $17.34 \div 5.1$
- (2) Use your calculator to work out 5.1^2 or 5.1^3
- (3) Use your calculator to work out $\sqrt{26.01}$ or $\sqrt[3]{132.651}$
- (4) {mix of skills from (1), (2) and (3) e.g. $\frac{5.67 + 1.09}{9.2 - 7.65}$ or $10.4^2 + \sqrt{460}$ }

Number: correct to

- (1) Write 1823.56734 correct to the nearest whole number.
- (2) Write 1823.56734 correct to 1 decimal place.
- (3) Write £1823.56734 correct to the nearest pence.
- (4) Write 1823.56734 correct to 2 decimal places.
- (5) Write 1823.56734 correct to 3 decimal places.
- (6) Write 1 823 476 correct to the nearest 10
- (7) Write 1 823 476 correct to the nearest 100
- (8) Write 1 823 476 correct to the nearest 1000
- (9) Write 3.56734 correct to 1 significant figure. $\{1 < n < 10 \text{ and } n > 20\}$

Number: estimate and accuracy

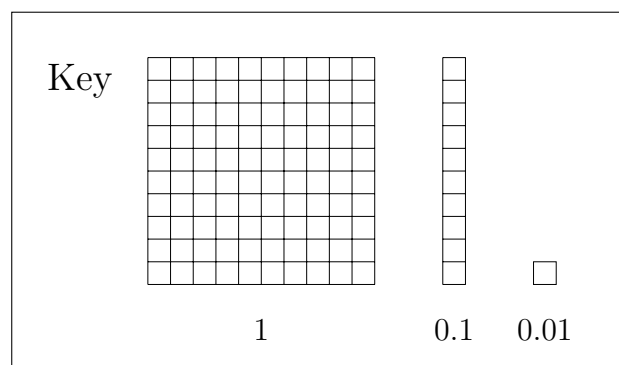
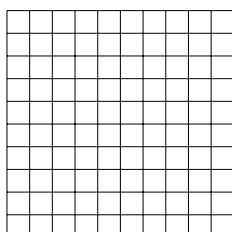
- (1) {Estimates are all U \times U BUT all “chop” never round up e.g. 6.1×8.3 }

Number: factors and primes

- (1) Write 700 as a product of its prime factors {only $\div 2$ or $\div 10$ required}
- (2) Write 216 as a product of its prime factors {also $\div 9$ and split into 3×3 required}
- (3) Write down all the factors of 20

Number: FDPR as CALC (fraction, decimal, percentage, ratio)

- (1) Shade in 64% of the square below.



Write 64% as a decimal (You may use a calculator or the Key if this helps you)

- (2) Write $\frac{11}{16}$ {or $\frac{21}{16}$ } as a decimal.

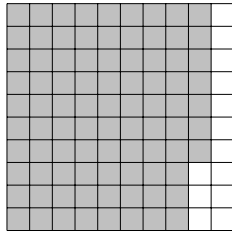
(continued)

Number: FDPR as CALC continued(fraction, decimal, percentage, ratio)

- (3) {Shade in 100 square(s) given F, D or P, convert to different F, D and P}
- (4) Write 0.06 {or 0.46, 0.6, 2, 8.3407} as a percentage.
- (5) Write $\frac{11}{16}$ {or $\frac{21}{16}$ } as a percentage.

Number: FDPR as NC (fraction, decimal, percentage, ratio)

- (1) Part of this 100 square is shaded.

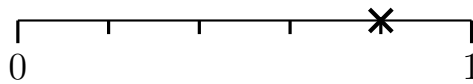


Write down the

- (i) fraction shaded
- (ii) percentage shaded %

- (2) Write 53% as a fraction or write $\frac{19}{100}$ as a percentage.

- (3) A probability is shown on this probability line with a cross.



Write down the probability shown as a fraction.

- (4) Write 142% or 42% or 3% or 0.4% or 0.27% as a decimal.
- (5) Write 0.08 as a percentage. {includes removing leading 0's when necessary}
- (6) The ratio of the number of premium seats to the number of standard seats is 1 : 4
What fraction of the seats are premium seats?
- (7) The fraction of boys in a class is $\frac{3}{5}$

Write down the ratio of the number of boys to the number of girls in the class.

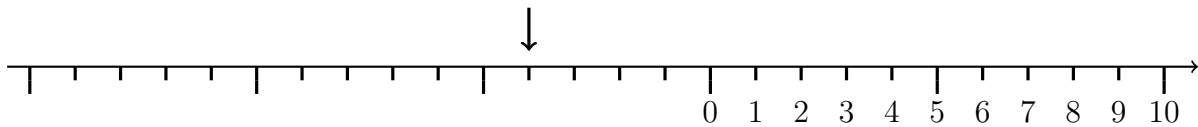
- (8) Write 0.9 as a percentage. {includes adding trailing 0's when necessary}
- (9) Write 40% as a decimal {includes removing trailing 0's when necessary}
- (10) {Word intro} Express 12 as a fraction of 72.
Give your answer in its simplest form.
- (11) {Word intro} Write down the ratio of the number of A to the number of B.
Give your answer in its simplest form. {e.g. A = 90, B = 36}

Number: fraction $+/-/\times/\div$

- (1) Work out $\frac{5}{7} + \frac{1}{7}$ {or $\frac{5}{7} - \frac{1}{7}$ }
- (2) Work out $\frac{2}{3} \times \frac{2}{5}$
- (3) Work out $\frac{1}{3} + \frac{2}{9}$ {one denominator is a multiple of the other}
- (4) Work out $\frac{5}{6} - \frac{1}{3}$ {one denominator is a multiple of the other}

Number: negative number

- (1) Write down the number shown on this number line



- (2) Write the following numbers in order.

-1, -3, 8, -2, 1, 5, -11

- (3) Work out $9 - 12$
 (4) Work out $-5 + -6$
 (5) Work out $-12 + 9$ or $-3 + 9$
 (6) Work out -2×3 or 4×-2

Number: percent NC

- (1) Work out 50% of £840 {ONLY even digits}
 (2) Work out 50% of £78 {includes odd digits}
 (3) Work out 10% of £54 200
 (4) Work out 5% of £35 {or 1% or 20% or 25%}
 (5) Work out 30% of £4200 {or 15% or 75%}
 (6) Work out 40% of £520 {or 2% or 80% or 2.5%}
 (7) {Word problem e.g. calculate 20% of 240}

Number: place value: decimal

- (1) Write down the value of the 3 {or 4} in the number 12.34567
 (2) Write these numbers in order of size. {Start with the smallest/largest/not told}
 (a) 0.6 0.0006 6 0.006 0.06 (b) 0.61 0.49 0.58 0.47 0.67 0.21
 (3) Use the information that $3 \times 7 = 21$ to find the value of 0.3×7
 (4) Work out 2×0.6
 (5) Work out 2×0.06
 (6) Work out 0.2×0.6
 (7) Use the information that $452 \times 57 = 25764$
 to find the value of 45.2×57 or 452×0.57
 (8) Write these numbers in order of size. 0.56 0.65 0.6 0.5 0.06

Number: place value: integer

- (1) {Order a set of two digit numbers.}
- (2) Write down the value of the digit 2 {or 3 or 4} in the number 12 345
- (3) {Order a set of {two and} three digit numbers.}
- (4) Use the information that $8 \times 3 = 24$ to find the value of 8×30
- (5) Work out 5×90 {Excludes any where simplest product ends with 0 e.g. 5×60 etc}
- (6) Work out 400×6 {Excludes any where simplest product ends with 0 e.g. 500×6 etc}
- (7) Work out 40×20 {Excludes any where simplest product ends with 0 e.g. 50×60 etc}

Number: standard form

- (1) Write 7.306×10^2 as an ordinary number
- (2) Write 3.9×10^{-3} as an ordinary number
- (3) Write 56.3 in standard form

Number: value index

- (1) Ffion says that the value of 9^2 is 18
Is Ffion right?
You must give a reason for your answer.
- (2) Here are four possible ways to write 4^3
(i) $4 \times 4 \times 4$ (ii) $3 \times 3 \times 3 \times 3$ (iii) $4 + 4 + 4 + 4$ (iv) $3 + 3 + 3$
Circle the correct one.
- (3) Write down the value of 6^2 { 7^2 or 8^2 } or 2^3 { 3^3 , 4^3 , 5^3 , 10^3 , 10^4 or 10^5 }
or 2^4 { 2^5 , 2^6 , 2^7 , or 1^2 , 1^3 , 1^4 or 1^5 }

Word Problem and Proportion: add NC

- (1) {single digit + single digit word problem}
- (2) {single digit + double digit (not teen), no carry, word problem}
- (3) {single digit + teen digit, no carry, word problem}
- (4) {single digit + double digit, no carry, word problem}
- (5) {single digit + teen/double digit, units carry, word problem}
- (6) {teen/double digit + teen/double digit, units carry, word problem}
- (7) {teen/double digit + teen/double digit, tens carry, word problem}
- (8) {teen/double digit + teen/double digit, tens and units carry, word problem}

Word Problem and Proportion: best value

- (1) Kaja wants to buy 4 fish cakes.

A shop sells the same type of fish cakes in two different size packets.

2 fish cakes for £1.25

4 fish cakes for £2.19

Which size packet is best value for money?

You must show all your working.

{or buy 1 (or 2) get one free, or family ticket v separate adult and child ticket}

- (2) {also need to convert between kg and grams or litres and *ml*}
- (3) {compare 3 shops with different deals or buy multiples of 2 two different items}
- (4) {Similar to (1) but we are NOT told how much the person wishes to buy}

Word Problem and Proportion: divide NC

- (1) {word problem ? \div 2, 9 or 10 = U}
- (2) {word problem ? \div 3, 4, 5, 6, 7 or 8 = U}
- (3) {word problem ? \div U = teen e.g. 11 or 13 etc.}
- (4) {word problem ? \div U = TU}

Word Problem and Proportion: exchange rate

The exchange rate is £1 = 1.216 euros.

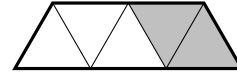
- (1) {Word problem change from pounds to euros}
- (2) {Word problem change from euros to pounds}

Word Problem and Proportion: FDPR of CALC (fraction, decimal, percentage, ratio)

- (1) Work out 68% {or 328%} of 90
- (2) Work out $\frac{1}{6}$ {or $\frac{5}{6}$ } of 186
- (3) {word problem - work out percentage of required}
- (4) {word problem - work out fraction of required}

Word Problem and Proportion: fraction of (NC)

(1) Write down the fraction of the shape that is shaded.



(2) Work out $\frac{1}{9}$ of 54 {ONLY unit fraction}

(3) Work out $\frac{7}{9}$ of 36 {NEVER unit fraction}

(4) {word problem ONLY unit fraction} e.g. $\frac{1}{8}$ of 240

(5) {word problem NEVER unit fraction} e.g. $\frac{3}{8}$ of 240

(6) {fraction of word problem e.g. $\frac{2}{5}$ of 45 were rainy} How many days were **not** rainy.

Word Problem and Proportion: how much enough CALC

(1) {word problem requires add of a few values (money, length or weight) }

(2) {word problem requires multiply a value (money, length or weight) by a frequency}

(3) {word problem requires multiply and add (money, length or weight)}

frequency_M × value_M + frequency_N × value_N OR

frequency(value_M + value_N) or frequency × value_M + frequency × value_N OR

frequency × value + fixed value}

(4) {word problem like (1), (2) or (3) but require a change of unit}

Word Problem and Proportion: how much enough NC

(1) {simple money word problem: pence + pence OR pounds + pounds}

(2) {add 2 or 3 or 4 values (money, length or weight) and say whether enough}

(3) {given amount paid and cost of item, find change received.

or given amount paid and change received, find cost of item.}

(4) {buys some items (given prices) and amount tendered must find change}

(5) {buys some items (given prices) and one other item (must find this price)

given amount tendered and change}

Word Problem and Proportion: ingredients

Given list of ingredients for 4 people {or 20 biscuits etc}

(1) Write out a list of ingredients for 8 people {only ×2}

(2) {write out ingredients/just one ingredient for 12 people (×3 or ×4 or ×10)}

(3) {write out ingredients/just one ingredient for for 2 people (×0.5 or ×1.5 or ×2.5)}

Word Problem and Proportion: multiply NC

- (1) {word problem 2, 9 or $10 \times U$ }
- (2) {word problem 4 or $5 \times U$ (not covered in 1) }
- (3) {word problem 3, 6, 7 or $8 \times U$ (not covered in 1 or 2) }
- (4) {word problem $U \times \text{teen}$ }
- (5) {word problem $U \times TU$ }
- (6) {word problem $TU \times TU$ }
- (7) {word problem $TU \times \text{£}U.t0$ }

Word Problem and Proportion: ratio

Faith and Katy share £35 in the ratio 5 : 2

- (1) Work out how much each person gets
- (2) Work out how much more Faith gets than Katy}
- (3) {Similar to (1) but share into three parts}
- (4) Emelie and Fern share some money in the ratio 3 : 5
Fern gets £800 {Questions set to mislead as $800 \div 8$ is wrong but encouraged by numbers}
Work out how much Emelie should have.

Word Problem and Proportion: subtract NC

- (1) {word problem $U - U$ }
- (2) {word problem $TU - U$ or $TU - TU$, NO carry}
- (3) {word problem $TU - \text{teen}$, NO carry}
- (4) {word problem $TU - TU$, WITH carry}
- (5) {word problem $TU - U$, WITH carry}
- (6) {word problem $TU - \text{teen}$, WITH carry}
- (7) {word problem mix of multiple adds and multiple subtracts, some with carry}

Word Problem and Proportion: types of number

Here is a list of numbers.

2 4 8 10 14 16 18 20 40 81

- (1) From this list, write down a multiple of 6. {or even number or odd number}
- (2) From the numbers in the list, write down a factor of 28.
- (3) From this list, write down a cube number. {or square number}
- (4) From this list, write down a prime number.

Algebra: algebra graph

- (1) Complete the table of values for
- $x = 3$
- {OR
- $y = 4$
- , or
- $y = 3x + 2$
- or
- $y = 5 - x$
- }

x			3	3	3		
y	-2	-1	0	1	2	3	4

Plot on graph.

- (2) $\{y = mx + c$ form, x values given and 1 y value as check, table on calculator encouraged}
- (3) $\{y = mx + c$ form, no incomplete table given, table on calculator encouraged}

Algebra: expand

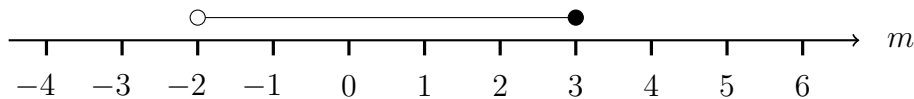
- (1) Expand $5(y + 2)$ or $5(y - 2)$
- (2) Expand $y(y + 2)$ or $y(y - 2)$
- (3) Expand and simplify $(x + 5)(x + 3)$ or $(x + 5)(x - 3)$ {NOT $(x - 5)(x - 3)$ }

Algebra: factorise

- (1) Factorise
- $3p - 12$
- or
- $12 - 3p$

Algebra: inequality, equality and expression

- (1) Here is an inequality, in
- m
- , shown on a number line.

 m is an integer.List all the possible values of m .

- (2)
- y
- is an integer such that
- $-3 \leq y \leq 0$

List all the possible values of y .

- (3) {Write down an inequality e.g. (1) or
- $x > -2$
- or show
- $x > -2$
- on number line.}

Algebra: number machine

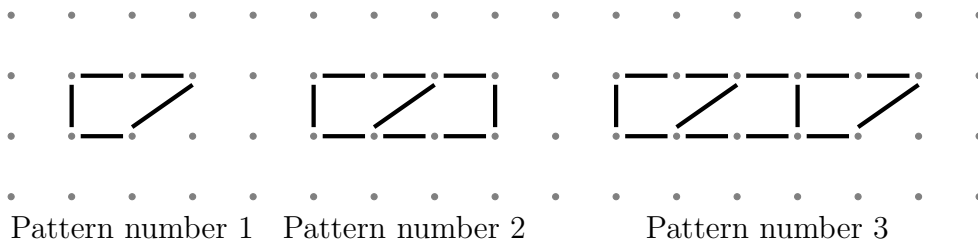
input \rightarrow 1 stage \rightarrow output OR input \rightarrow 1st stage \rightarrow 2nd stage \rightarrow output

- (1) {1 stage} Work out the **output** when the input is ... $\{+, -, \times \text{ U or } \div \text{ by 2 or 9 or 10}\}$
- (2) {2 stage} Work out the **output** when the input is ... $\{+, -, \times \text{ or } \div \text{ U}\}$
- (3) {1 stage} Work out the **input** when the output is ... $\{+, -, \times \text{ or } \div \text{ U}\}$
- (4) {2 stage} Work out the **input** when the output is ... $\{+, -, \times \text{ or } \div \text{ U}\}$

Algebra: sequence: arithmetic

- (1) Here is a number sequence 4 8 12 16 20 24 28
 (i) All the numbers in the sequence are of {either multiples or 4 to fill in}
 (ii) Write down the next term in the sequence
- (2) Here are the first 5 terms of an arithmetic sequence. 5 9 13 17 21
 (i) Write down the term to term rule of the sequence
 (ii) Write down the next term of the sequence
- (3) Here are the first five terms of an arithmetic sequence. 5 9 13 17 21
 Find the 8th term of this sequence.

Here is part of a sequence of patterns made from sticks.



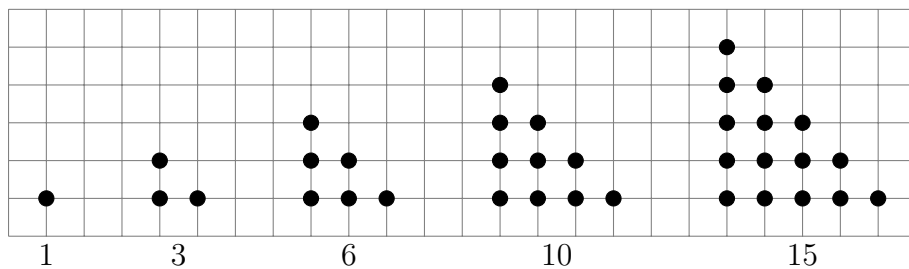
- (4) (a) In the space, below draw {or complete} Pattern number 4

(b) Complete the table

Pattern number	1	2	3	4	5
Number of sticks	5	9	13		

Algebra: sequence: other

- (1) The number of dots {or squares} in each pattern is a triangle number.



Write down {or draw} the next {or missing} triangle number OR

The rule to continue a triangle number sequence is add on one more each time.

Write down the next triangle number.

- (2) Here are the first seven terms of a Fibonacci sequence.

1 1 2 3 5 8 13

The rule to continue a Fibonacci sequence is,

the next term in the sequence is the sum of the two previous terms.

Find the 10th term of this sequence.

Algebra: simplify +/-

- (1) Simplify $p + p + p + p$
- (2) Simplify $5a + 2a$ or $9y - 5y$ or $x + x + 3x$ or $5f + f + f - f$
- (3) Simplify $3x - 7x$ or $-2f - 5f$ or $-f + 4f$
- (4) Simplify $-4p - q + 5p - q$

Algebra: simplify x/÷

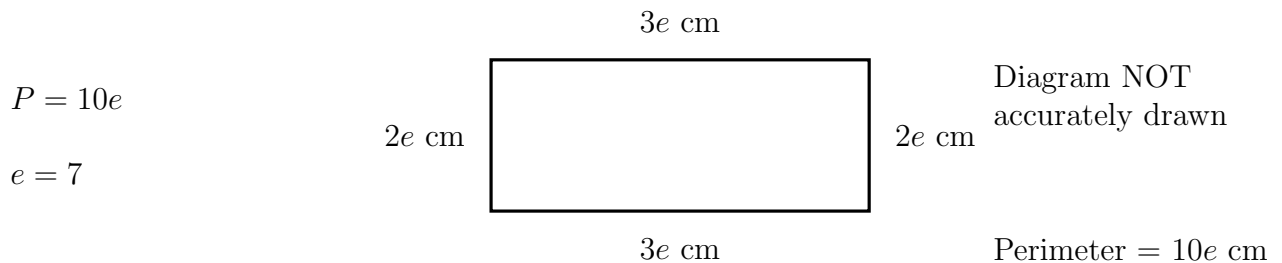
- (1) Simplify $x \times x \times x \times x \times x$
- (2) Simplify $e^7 \times e^3$ OR $y^6 \times y$
- (3) Simplify $n \times m$ OR $w \times w$
- (4) Simplify $4 \times a \times d$ OR $a \times 4 \times d$ OR $a \times d \times 4$
- (5) Simplify $4a \times 2$ OR $2 \times 4a$ OR $2 \times a \times 4$
- (6) Simplify $a \times 4d$ OR $4a \times d$ OR $4a \times a$
- (7) Simplify $2x \times 4y$ OR $3y \times 5x$ OR $3y \times 5y$

Algebra: solve

- (1) Solve $\frac{q}{3} = 12$ {one stage}

Algebra: value of: algebra

- (1) Work out the value of P {Student may use diagram to help or see (3) }




- (2) {Like (1) but two variables, student may use diagram to help or see (4)}
- (3) $u = 4t$ {similar (1) but no context}
 $t = 9$
 Find the value of u
- (4) $p = 3$ {similar (2) but no context}
 $q = 8$
 Work out the value of $7p + 2q$
- (5) $p = 3$ {similar (4) but with negative (never negative \times negative)}
 $q = 8$
 Work out the value of $7p - 2q$

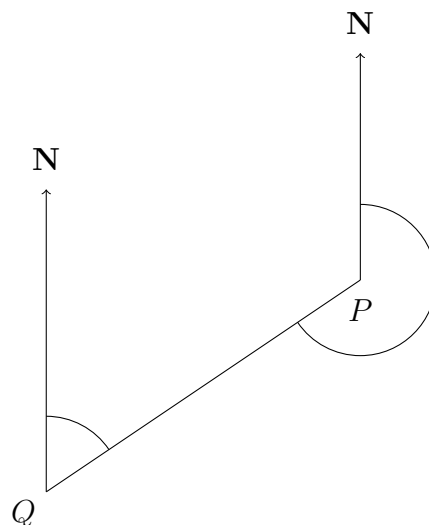
Algebra: write in algebra

- (1) A multipack contains b packs of barbecue flavour crisps, and p packs of plain crisps.
Write down an expression for the total number of packs of crisps in the multipack.
- (2) A hotel buys 7 packets of hand towels.
Each packet contains h hand towels.
They buy a total of T hand towels.
Write a formula for T , in terms of h .
- (3) Joni has n packets of apples.
There are 6 apples in a packet.
 - (i) Write down an expression, in terms of n , for the total number of apples Joni has.
11 of Joni's apples are eaten.
 - (ii) Write down an expression, in terms of n , for the number of apples Joni has now.

Geometry and Measure: accurate diagram: interpret

- (1) Measure the length of the line PQ.


- (2) Measure the length of PQ {Line not horizontal, other lines in diagram}
- (3) Write down the bearing of Q from P.



- (4) The diagram {above} shows the position of two check points P and Q.
The scale of the diagram is 1 cm represents 10 km {or 1 km or 100km}
Write down the distance from P to Q.
- (5) Measure an angle {measure from horizontal only}

Geometry and Measure: angle: calculate

- (1) {Solve problem using: angle ... point ... 360° }
- (2) {Solve problem using: angle ... straight line ... 180° }
- (3) {Solve problem using: angle ... triangle ... 180° }
- (4) {Solve problem using: angle ... quadrilateral ... 360° }
- (5) {Solve problem using: ABC for labelling angles and one rule from (1) to (4)}

Geometry and Measure: area

Found with perimeter for comparison purposes

Geometry and Measure: change units {some are word problems}

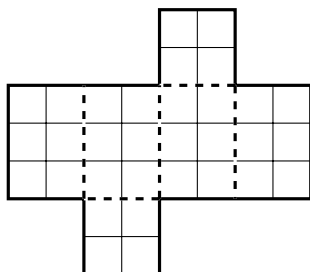
- (1) Change 8.2 cm into mm.
- (2) Change 8.2 m into cm.
- (3) Change 3.127 kg into grams. {or litres to *ml* or km to metres: conversion \times by 1000}
- (4) Change 400 millilitres into litres {or grams to kg or m to km: conversion \div by 1000}
- (5) Change 250 millimetres into centimetres { etc. conversion \div by 10, 100 or 1000}
- (6) How many minutes are there in $1\frac{3}{4}$ hours?

Geometry and Measure: coordinates

- (1) {Plot coordinate in first quadrant}
- (2) {Write down coordinate of point found in the first quadrant}
- (3) {Plot/write down coordinate, diagram has only 1st and 2nd OR 1st and 4th quadrant}
- (4) {Plot coordinate in any quadrant}
- (5) {Write down coordinate of point in any quadrant}

Geometry and Measure: find A or V first (area or volume)

- (1) Here is the net of a cuboid drawn on a grid of centimetre squares.



Work out the surface area of the cuboid.

Geometry and Measure: area and perimeter

NB the different order of difficulty

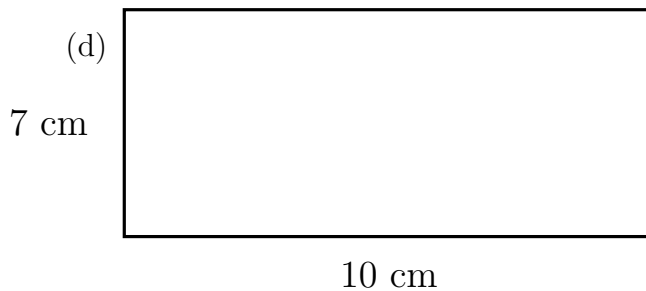
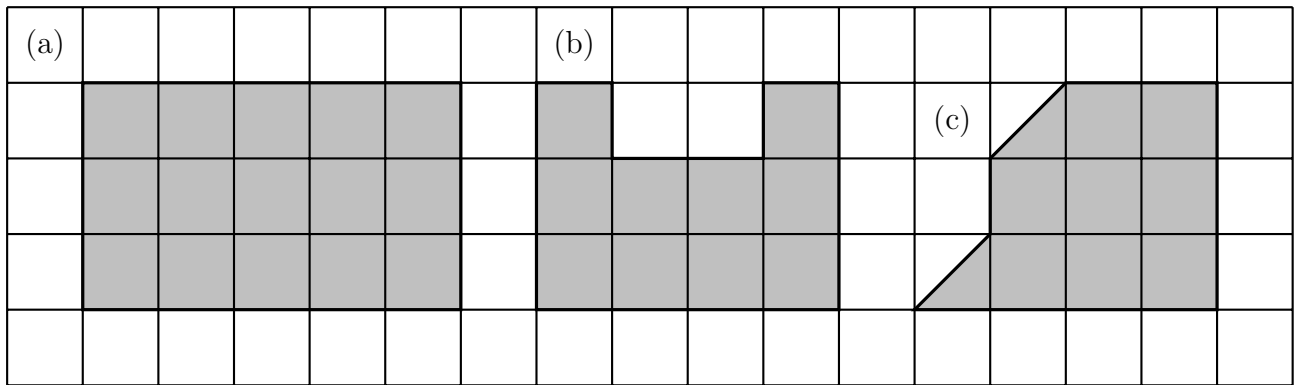


Diagram NOT
accurately drawn

Geometry and Measure: area

- (1) Find the area of the shaded rectangle (a) {or shape (b)}
- (2) Find the area of the shaded shape (c) {N.B. countable $1/2$ squares}
- (3) Work out the area of the rectangle. (d) {NC}
- (4) {Work out area of rectangle, width = 15.3cm height = 6cm - calculator encouraged}
- (5) {Work out area of square, side length = 3.7km - calculator encouraged}
- (6) {Work out area of circle, radius = 6.5 metres - calculator encouraged}
- (7) {Work out area of parallelogram, width = 15.3 cm height = 6cm NC}
- (8) {Work out area of right angled triangle, width = 9 cm height = 5cm NC}

Geometry and Measure: perimeter

- (1) Find the perimeter of the shaded rectangle. {see diagram (a)}
- (2) Work out the perimeter of the rectangle. {see diagram (d)}
- (3) Find the perimeter of the shaded shape. {see diagram (b)}
- (4) {Work out perimeter of rectangle, width = 15.3 cm height = 6.2 cm}
- (5) {Work out perimeter of square, side length = 3.7km}
- (6) {Work out circumference of a circle, diameter = 28.2km, - calculator encouraged}

Geometry and Measure: shape names and properties

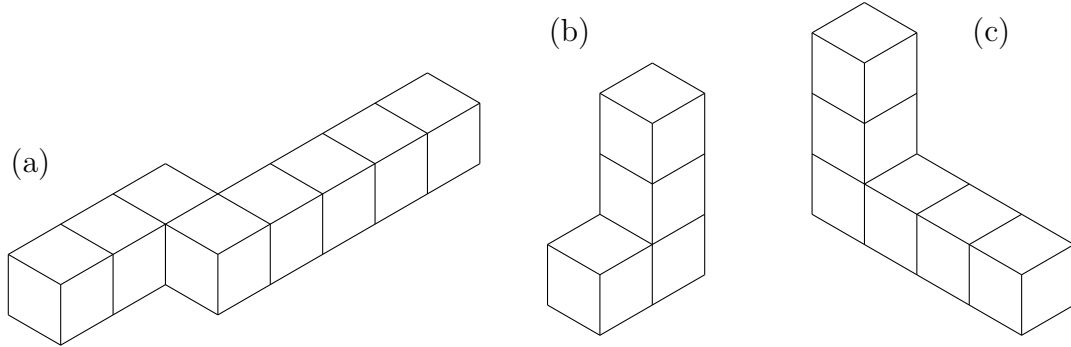
- (1) Write down the mathematical names of given polygon. {pent/ hex/ oct/ dec/ -agon}
How many sides has a pentagon? {or hex/ oct/ dec/ -agon}
- (2) Write down the mathematical names of given solid.
{triangular/pentagonal/hexagonal prism, cone, cube, cuboid, cylinder, sphere}
{triangle/square/pentagon/hexagon based pyramid}
- (3) Find/draw/complete shape with one {or two} lines of symmetry.
- (4) Write down the order of rotational symmetry of a shape /mark centre of rotation/
complete shape with rotational symmetry of order two {or 3 or 4} /
complete shape with rotational symmetry of order two with no lines of symmetry.}
- (5) Write down the mathematical name of quadrilateral {or draw}
{square, rectangle, kite, rhombus, parallelogram, trapezium}
or special name of triangle{scalene, isosceles, equilateral and right}
- (6) Find congruent shapes
- (7) Write down name of kind of angle {acute, right, obtuse, reflex}
- (8) Write down the name of a solid {given net of triangular/pentagonal/hexagonal prism
cone, cuboid, cube, cylinder, sphere, triangle/square/pentagon/hexagon based pyramid}
- (9) Mathematical name for part of a circle {circumference, centre, radius, diameter}
- (10) Shade the face of a solid ABCD or write down the number of faces, edges or vertices

Geometry and Measure: transform: shape

- (1) Reflect the shaded shape in the mirror line. {mirror line touches shape}
- (2) Reflect the shaded shape in the mirror line. {mirror line does NOT touch shape}
- (3) Translate shape F four squares to the left. {translate in one direction 2/3/4/ left/right/up/down}
- (4) Rotate trapezium F 90° clockwise {or anti-clockwise} about the star {touches shape}
- (5) Reflect the shaded shape in the x -axis {or y -axes}
- (6) Translate shape F four squares to the left and two squares up {or right or down}
- (7) Draw an enlargement of a shape scale factor 2 {or 3, no sloping sides, or centre given}
- (8) Rotate shape 90° {or 270° } {anti-}clockwise about a coordinate {touches shape}
Rotate shape 180° about a coordinate {touches shape}
- (9) Reflect the shaded shape in a diagonal mirror line. {shape not on squares of grid}
- (10) Draw an enlargement of a shape scale factor 2 {or 3, sloping sides, no centre given}

Geometry and Measure: volume

- (1) Find the volume of the solid shape. {made from centimetre cubes}



- (2) Find the volume of the solid shape. {cuboid made from centimetre cubes NC}
 { one dimension = 1cm, other two dimensions are large so hard for student to count}
- (3) Find the volume of the cuboid {e.g. $3 \times 4 \times 5$, cubes shown NC}
- (4) Find the volume of the cuboid {e.g. $3 \times 4 \times 5$, NO cubes shown NC}

Probability and Statistics: continuous data graph

Using given conversion e.g. 1 gallon = 4.5 litres

- (1) {Complete table, draw graph and convert from x -axis to y -axis}
- (2) {Similar to (1) but convert from y -axis to x -axis}

Probability and Statistics: different ways and simple probability

- (1) There are 7 good rulers and 2 broken ruler in a tray.

A ruler is taken at random from the tray.

What is the probability that the ruler is broken?

- (2) There are only blue counters, green counters and white counters in a bag.

There are 3 blue counters.

There are 5 green counters.

There is 1 white counter.

Arianna takes a counter, at random, from the bag.

Work out the probability that she takes a counter that is **not** green.

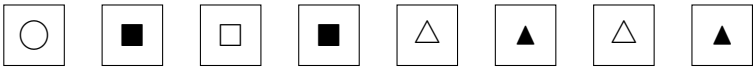
OR

The probability of picking a broken pen from a pot is 0.15

Work out the probability that a pen, picked at random, from the pot will **not** be broken.

(continued)

Probability and Statistics: different ways and simple probability (continued)

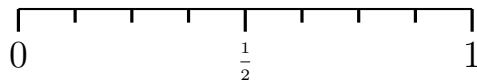
- (3) India puts these tiles in a bag. 

India, shakes the bag and takes a tile, at random, from the bag.

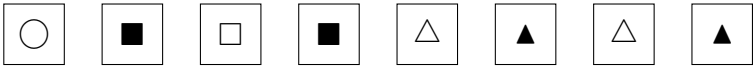
- (i) Choose the word that best describes the probability that ...

impossible unlikely evens likely certain

- (ii) On the probability scale below, mark with a cross (×) the probability that



... India takes a white shape. {possible to list all outcomes}

- (4) India puts these tiles in a bag. 

India, shakes the bag and takes a tile, at random, from the bag.

Which shape is she most likely to take? {tests the “mathematical” meaning of likely}

OR

Choose the word that best describes the probability that you will be alive in 10 years time. {not possible to list all outcomes}

impossible unlikely evens likely certain

- (5) Barnaby is attending a summer camp.

One day every camper must choose a sport and a craft.

Sport	Craft
Danzercise	Drawing
Football	Mosaic
Running	Origami

Write down all the possible combinations

The first one has been done for you.

- (6) {Word problem where given a selection of experiments with different number of trials asks which is the best estimate of a probability

OR

asks student to use all the results to find a better estimate of probability}

Probability and Statistics: discrete data graphs

- (1) Write down the number of ... {frequency required on on frequency axis, is labelled}
Write down the number of ... {whole number of pictures in pictogram}
- (2) Complete the bar chart {frequency required on on frequency axis, is labelled}
Complete the pictogram {whole number of pictures in pictogram}
- (3) Complete the tally {or frequency} chart
complete a bar chart, {both axis already labelled}
or complete a pictogram, {table and key given}
- (4) Write down the mode from bar chart or pie chart or pictogram or frequency table.
{data labels are things not numbers}
- (5) Write down the number of ... {frequency required on on frequency axis, is NOT labelled}
Write down the number of ... {quarter, half or three quarters of picture in pictogram}
- (6) Complete the bar chart {frequency required on on frequency axis, is NOT labelled}
Complete the pictogram {quarter, half or three quarters of picture in pictogram}
- (7) Given frequency table, bar chart or pictogram e.g. coloured t-shirts sold
How many less/more colour A than colour B were sold ?
What colour was the t-shirt that more then/exactly/less than {frequency} were sold?
How many t-shirts were sold in {time frame}?
What fraction of the t-shirts sold were colour A ?
- (8) Complete back to back pictogram, dual bar chart/frequency table.
Answer questions from back to back pictogram, dual bar chart/frequency table.
- (9) Find errors in pictogram, bar chart, frequency table or pie chart.

Probability and Statistics: frequency or probability table

In a school's meal deal a drink is included.

This table gives some information about which drink 120 people chose.

	Fizzy	Juice	Water
Girls	18	39	11
Boys	22	7	4
Teachers	3	5	11

One of the people is chosen at random.

- (1) Write down the probability that the person was a boy who chose juice.
 - (2) Write down the probability that the person was a boy.
- (continued)

Probability and Statistics: frequency or probability table (continued)

The table shows the probability that a counter take at random from the bag will be yellow, blue, red, green or white.

Colour	yellow	blue	red	green	white
Probability	0.24	0.31	0.2	0.1	

- (3) Work out the probability that the counter will be white. (4) too hard - moving soon
 (5) {Given 2 way entry table grid EITHER partially complete
 OR blank plus word clues, complete the table (and sometimes state a probability)}
 (6) {Complete frequency tree - easy gaps}

Probability and Statistics: MMMRQ (mean, median, mode, range and quartiles)

- (1) Write down the mode.
 (2) Write down the range
 (3) Write down the median {odd number of non ordered data items}
 (4) Write down the mean
 (5) Write down the median {even number of non ordered data items}

Probability and Statistics: probability tree

- (1) {Given partially completed tree diagram - student finds "quick way" to calculate $p(\text{outcome})$ }
 (2) {Given tree with probability on each branch - word problem to calculate $p(\text{outcome})$ }

Probability and Statistics: scatter

- (1) {Add data values to scatter and state type of correlation}
 (2) {Given x -value of extra data item estimate y -value from scatter graph}

Probability and Statistics: stem and leaf

- (1) {Complete a stem and leaf diagram, data is TU, grid and key given}
 (2) {Given or complete a stem and leaf diagram, data is TU and key given, and ...
 find the median, mode or range or probability of more/less than ...}
 (3) {Given stem and leaf but data key is e.g. $5|6 = 0.56$ 5.6 or 560 or $5\ 600$ etc
 find the median, mode or range or probability of more/less than ...}

Probability and Statistics: Venn

- (1) {Given all the elements of A , B and ξ students complete a blank Venn diagram}
 (2) {Given completed Venn diagram, students asked to list $A \cup B$, $A \cap B$, A' or B' }
 (3) {Given all the elements of $A \cup B$, $A \cap B$ and A or B students complete Venn diagram}
 (4) {Given Venn diagram where C and D are e.g. number of cat and dog owners
 write down or describe the meaning of $P(C \cap D)$, $P(C \cup D)$, $P(C')$ OR $P(D')$ }