Number: calculator skills

(1) Use your calculator to work out 5.1×3.4 or $\dfrac{17.34}{5.1}$ 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 $\sqrt[3]{132.651}$

Number: correct to

(1) Write 1823.56734 correct to the nearest whole number.

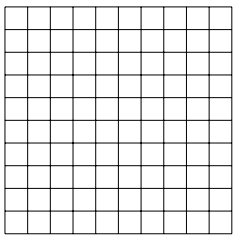
(2) Write 1823.56734 correct to 1 decimal place.

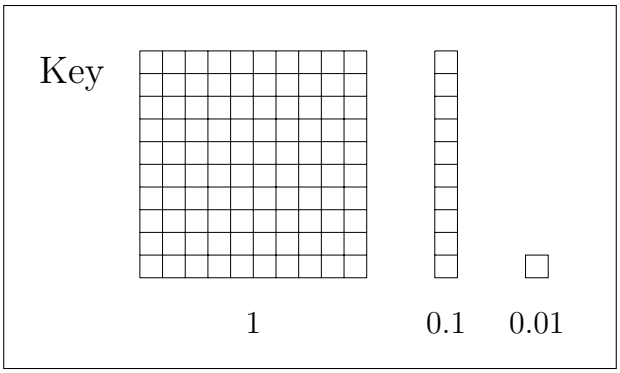
(3) Write £1823.56734 correct to the nearest pence.

(4) Write 1823.56734 correct to 2 decimal places.

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

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



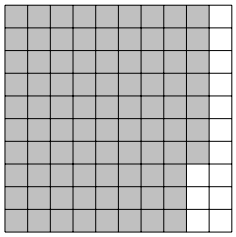


Write 64% as a decimal (You may use a calculator or the Key if this helps you)

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

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

(1) Part of this 100 square is shaded.



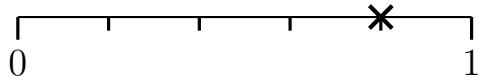
Write down the

(i) fraction shaded . . . . . .

(ii) percentage shaded . . . . . %

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

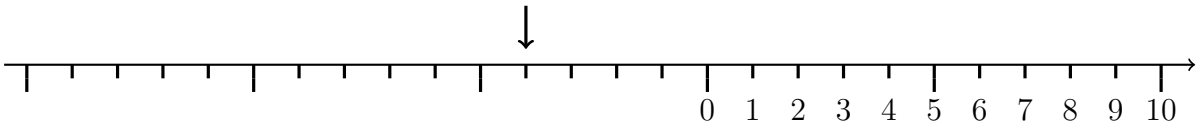
Number: fraction +/-/×/÷

(1) Work out $\frac{5}{7} + \frac{1}{7}$ {or $\frac{5}{7} - \frac{1}{7}$}

(2) Work out $\frac{2}{3} \times \frac{2}{5}$

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

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%}

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

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}

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.

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}

Word Problem and Proportion: divide NC

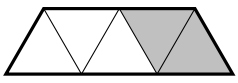
(1) {word problem ? $\div$ 2, 9 or 10 = U}

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

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}

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}

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.}

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}}

Word Problem and Proportion: multiply NC

(1) {word problem 2, 9 or 10 × U}

(2) {word problem 4 or 5 × U (not covered in 1) }

(3) {word problem 3, 6, 7 or 8 × U (not covered in 1 or 2) }

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 - teen, NO carry}

(4) {word problem TU - TU, WITH carry}

(5) {word problem TU - U, WITH carry}

(6) {word problem TU - teen, 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}

Algebra: algebra graph

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

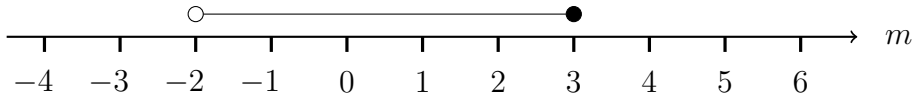
x			3	3	3		
y	-2	-1	0	1	2	3	4

Plot on graph.

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.

Algebra: number machine

input ⟶ [1 stage] ⟶ output OR input ⟶ [1st stage] ⟶ [2nd stage] ⟶ output

(1) {1 stage} Work out the **output** when the input is ... {+, - , × U or ÷ by 2 or 9 or 10}

(2) {2 stage} Work out the **output** when the input is ... {+, -, × or ÷ 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

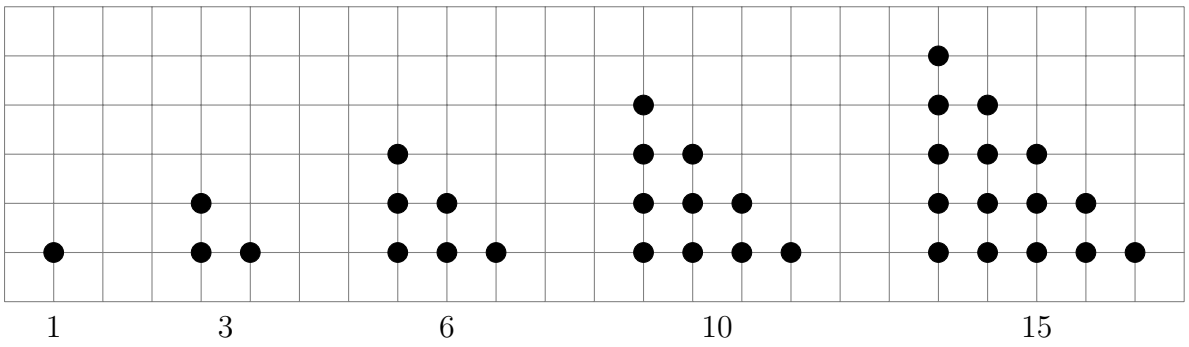
(2) Here are the first 5 terms of an arithmetic sequence. 5 9 13 17 21

(i) Write down the term to term rule of the sequence

(ii) Write down the next term of the sequence

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.

Algebra: simplify +/-

(1) Simplify $p + p + p + p$

(2) Simplify $5a + 2a$ or $9y - 5y$ or $x + x + 3x$ or $5f + f + f - f$

Algebra: simplify x/÷

(1) Simplify $x \times x \times x \times x \times x$

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.

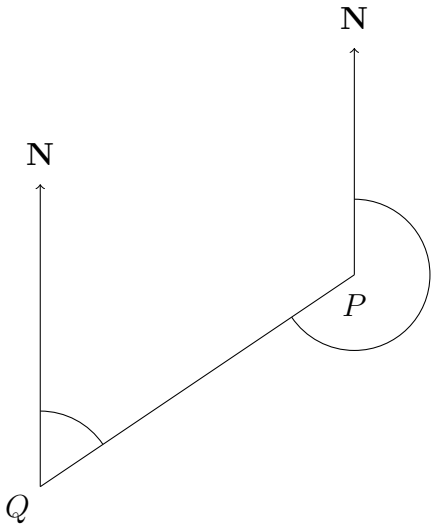
Geometry and Measure: accurate diagram: interpret

(1) Measure the length of the line PQ.

{e.g. 5.6 cm}

(2) Measure the length of PQ {Line not horizontal, other lines in diagram}

(3) Write down the bearing of Q from P.



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}

Geometry and Measure: coordinates

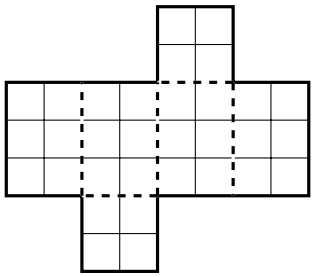
(1) {Plot coordinate in first quadrant}

(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}

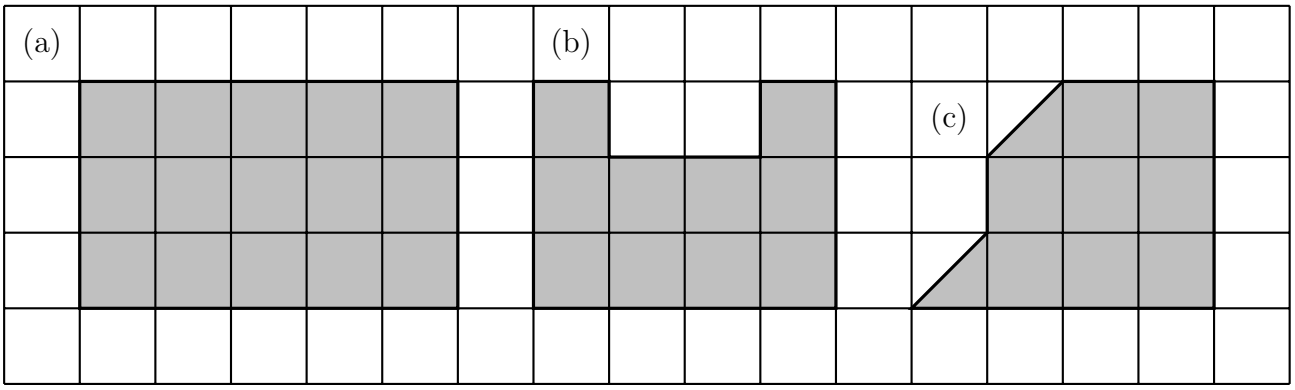
Geometry and Measure: find A or V first (area or volume)

(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



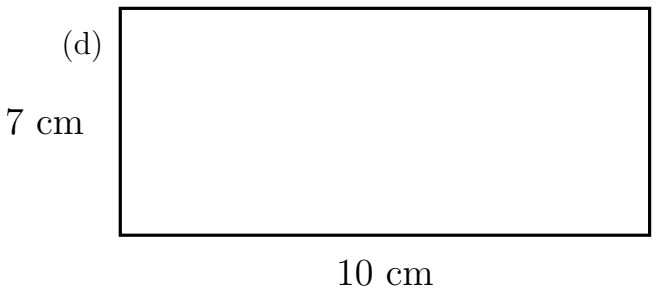


Diagram NOT accurately drawn

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}

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}

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}

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}

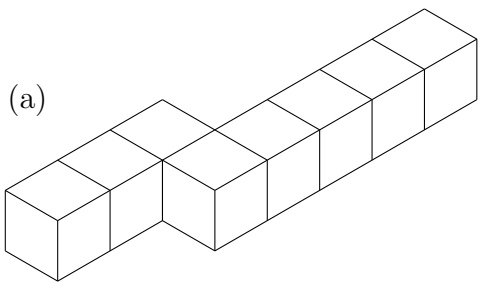
(7) Draw an enlargement of a shape scale factor 2 {or 3, no sloping sides, or centre given}

(8) Rotate shape 90° {or 270°} {anti-}clockwise about a coordinate {touches shape}
Rotate shape 180° about a coordinate {touches shape}

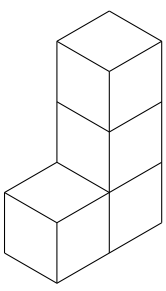
Geometry and Measure: volume

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

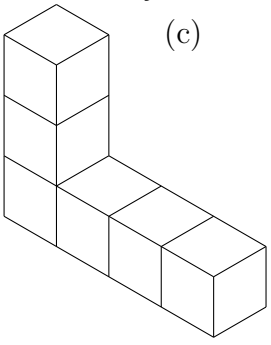
(a)



(b)



(c)



(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}

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.

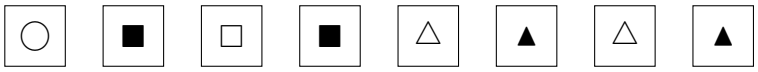
Arianna takes a counter, at random, from the bag.

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.

(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}

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}

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.

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}

Probability and Statistics: stem and leaf

(1) {Complete a stem and leaf diagram, data is TU, grid and key given}

Probability and Statistics: Venn

(1) {Given all the elements of A, B and ξ students complete a blank Venn diagram}

