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Grade 1 Foundation and Higher

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- 1)
 - a) Write the number forty five thousand, two hundred and seventy three in figures.
 - b) Write the number five thousand, one hundred and three in figures.
 - c) Write the number three hundred thousand, seven hundred and ninety one in figures.
 - d) Write the number two and a half million in figures.
 - e) Write the number one and three quarter million in figures.

- 2) Write the following numbers in words
 - a) 1 250
 - b) 3 502
 - c) 72 067
 - d) 192 040
 - e) 30 000 000

- 3)
 - a) Write down the value of the 7 in the number 3 752.
 - b) Write down the value of the 6 in the number 56 025.
 - c) Write down the value of the 2 in the number 99 723.
 - d) Write down the value of the 5 in the number 258 610.
 - e) Write down the value of the 2 in the number 1 253 549.

- 4) What is the value of the digit 7 in 38.1472?
 Choose, and circle, the correct answer from the following:

$\frac{7}{10}$
 $\frac{7}{100}$
 $\frac{7}{1000}$
 $\frac{7}{10000}$

Ordering Integers

Put these numbers in order, starting with the smallest:

- 1) 74, 57, 38, 8, 61
- 2) 39, 84, 11, 128, 24
- 3) 76, 102, 12, 140, 73
- 4) 3, -2, -7, 10, -1
- 5) -3, -11, 1, -5, 7
- 6) -4, 6, 0, -6, -1
- 7) 205, 2005, 105, 55, 5005
- 8) 83, -61, -42, 65, -14

Ordering Decimals

1) Put these amounts of money in order, starting with the smallest:

- a) £4.50, £3.82, £4.05, £3.99, £3.54
- b) £1.25, £2.41, £1.24, £2.04, £1.99
- c) £15.83, £24.18, £13.99, £46.01, £46.10

2) Circle the smallest number: 0.1, 0.09, 0.99, 0.15, 0.11

3) Put these numbers in order, starting with the smallest:

2.01, 2.45, 2.14, 2.006, 2.405

4) Put these numbers in order, starting with the smallest:

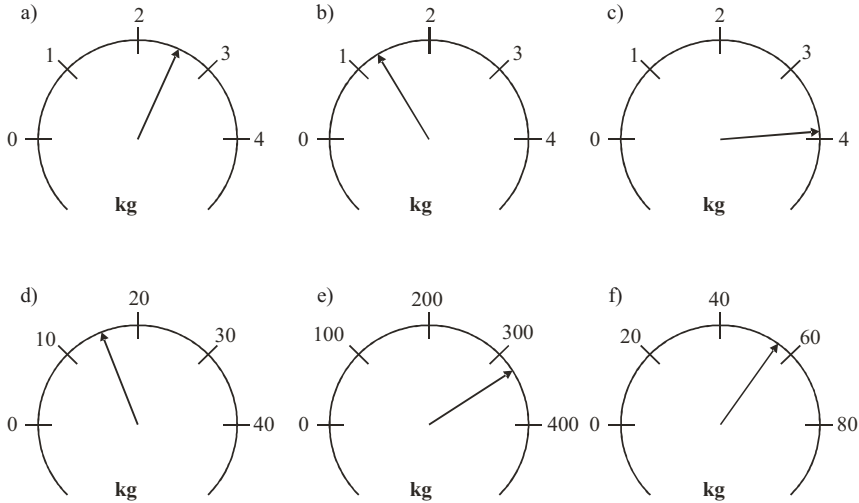
0.76, 0.668, 0.608, 0.099, 0.909

5) Put these numbers in order, starting with the smallest:

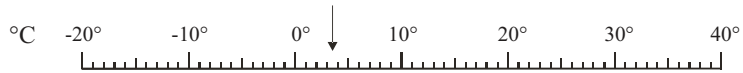
5.004, 4.889, 4.099, 5.002, 4.095

Reading Scales

1) Estimate the reading on each of these scales:

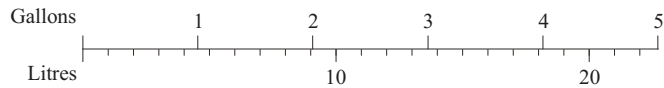


2) This scale shows degrees Centigrade.



- a) What temperature is the arrow pointing to?
- b) Draw an arrow which points to -17°C .

3) This is a diagram for converting between gallons and litres.



Use the diagram to convert

- a) 3 gallons to litres.
- b) 4.5 gallons to litres.
- c) 6 litres to gallons.

Simple Mathematical Notation

1) For each mathematical sign, below, write a brief description of the sign. The first one has already been done.

- a) $<$ less than
- b) \geq _____
- c) $>$ _____
- d) \leq _____
- e) \neq _____

2) Insert one of the two symbols $<$ or $>$ to make the following statements true:

- a) $8 \dots 5$
- b) $-4 \dots -6$
- c) $2.08 \dots 2.8$
- d) $8 + 3 \dots 2 + 7$
- e) $2 - 7 \dots 5 - 8$

3) You must be at least 1.6 m tall to ride on a rollercoaster at Romy Park. Circle the correct description of this out of the following:

- Height < 1.6 m
- Height ≤ 1.6 m
- Height $= 1.6$ m
- Height ≥ 1.6 m
- Height > 1.6 m

- 1) Calculate the difference in hours and minutes between 9.30 am and 2.45 pm.
- 2) Calculate the difference in hours and minutes between 11 35 and 13 25.
- 3) The table shows the distances in kilometres between some cities in the USA.

San Francisco							
4827	New York						
4990	2132	Miami					
668	4541	4375	Los Angeles				
3493	1352	2183	3366	Chicago			

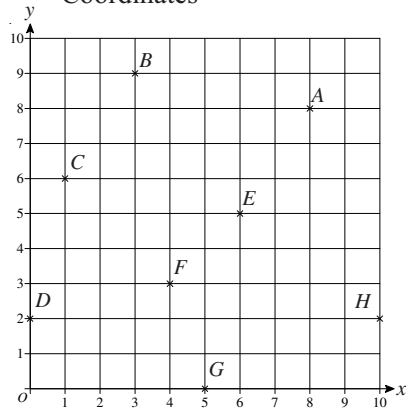
- a) Write down the distance between San Francisco and Miami.
- One of the cities in the table is 4541 km from Los Angeles.
- b) Write down the name of this city.
 - c) Write down the name of the city which is furthest from Chicago.
- 4) Here is part of a train timetable

Manchester	05 15	06 06	06 45	07 05	07 15	07 46
Stockport	05 26	06 16	06 55	07 15	07 25	07 55
Macclesfield	05 39	06 29	07 08		07 38	08 08
Stoke	05 54	06 45	07 24		07 54	08 24
Stafford	06 12		07 41		08 11	
Euston	08 09	08 26	09 06	09 11	09 50	10 08

- a) Tim catches the 06 06 train from Manchester.
At what time should he expect to arrive at Euston?
- b) Jenny arrives at the Stockport train station at 07 00
 - (i) How long should she expect to wait for a train to Stoke?
 - (ii) How long should her train journey take?
- c) Sarah needs to travel to Euston from Macclesfield.
She has to arrive at Euston before 09 30.
What is the departure time of the latest train she can catch to get there on time?

- 1) Write the following in their simplest forms using algebraic notation:
 - a) $r \times 5$
 - b) $c \div 4$
 - c) $x + x + x + x$
 - d) $e \times 1$
- 2) Write the following using algebraic notation:
 - a) I think of a number and multiply it by 4.
 - b) I think of a number, multiply it by 6 and then add 5.
 - c) I think of a number, triple it and then subtract 7.
- 3) Write the following using algebraic notation:
 - a) I think of a number, add 2 and then multiply the result by 3.
 - b) I think of a number, subtract 6 and then divide the result by 2.
- 4) Write the following using algebraic notation:
 - a) I think of a number, add 9, multiply the result by 4 and then divide everything by 2.
 - b) I think of a number, take away 5, divide the result by 3 and then multiply the result by 2.

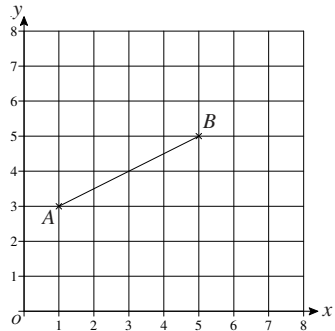
Coordinates



1) Write down the coordinates of the points A to H.

2) a) Write down the coordinates of: (i) A (ii) B

b) Write down the coordinates of the midpoint of the line AB.



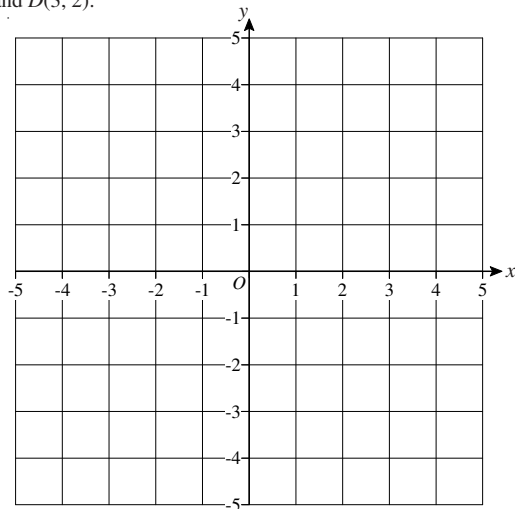
3) Using the pair of axes,

a) Plot the points A(2, 0), B(4, 0), C(5, 2) and D(3, 2).

b) Join the points in order, to form a shape and name the shape.

M is the midpoint of the line segment AC.

c) Find the coordinates of M.



4) Using the same pair of axes,

a) Plot the points R(-1, -2), S(1, 1) and T(-1, 2).

b) Join R to S and S to T.

RSTU is a kite.

c) Write the coordinates of point U.

Simple Geometric Definitions

1) Write one or two short sentences which say what the special features are of the triangles listed, below. The first one has been done for you.

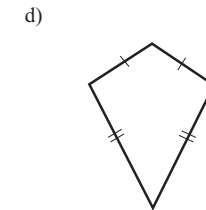
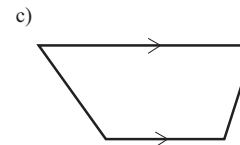
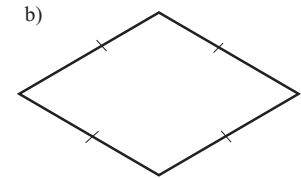
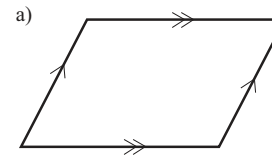
a) An equilateral triangle **All the sides are the same length.**
All three angles are 60°

b) A right-angled triangle

c) A scalene triangle

d) An isosceles triangle

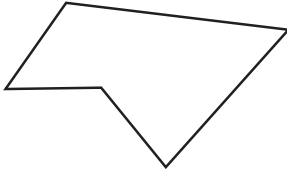
2) Next to each of the quadrilaterals, write down its special name.



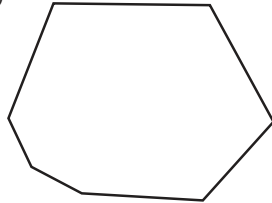
Polygons

1) Next to each of the shapes, write down its name.

a)



b)



2) a) What is the name given to a 10-sided shape?

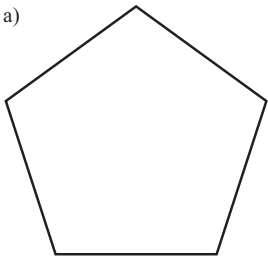
b) What is the name given to an 8-sided shape?

3) To be a regular polygon the shape must have equal _____ and equal _____.

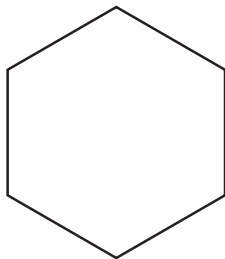
Fill in the blanks.

4) What are the names of these regular polygons?

a)

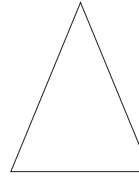


b)

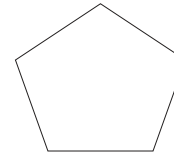


Symmetries

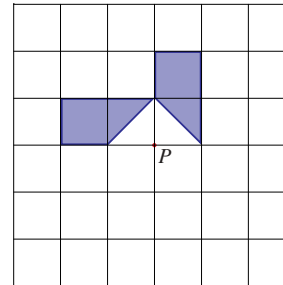
1) Draw all the lines of symmetry on the triangle and the rectangle.



2) What is the order of rotational symmetry of the two shapes below?



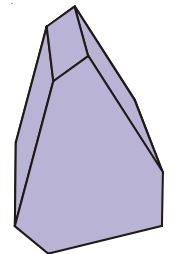
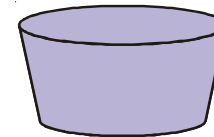
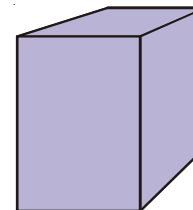
3) The diagram below, shows part of a shape.



The shape has rotational symmetry of order 4 about point *P*.

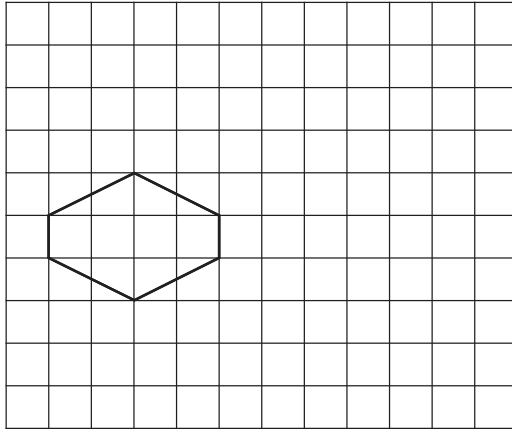
Complete the shape.

4) On each of the shapes below, draw one plane of symmetry.

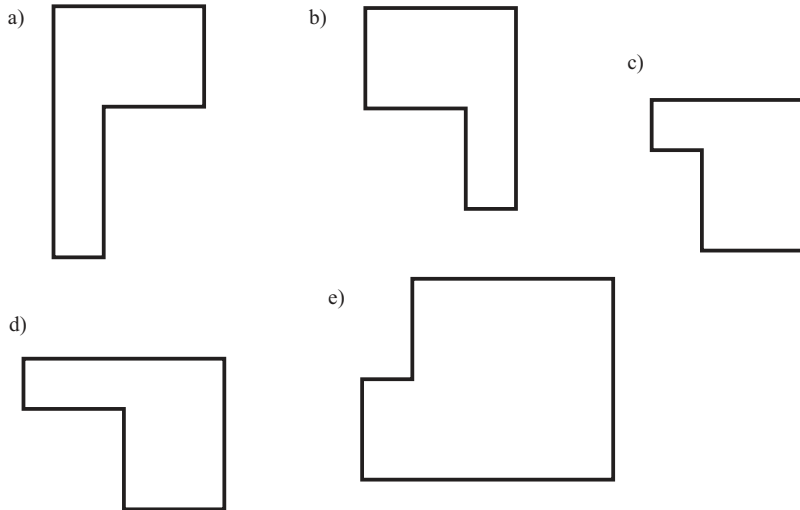


Tessellations and Congruent Shapes

- 1) Show how this shape will tessellate.
You must draw six more shapes.

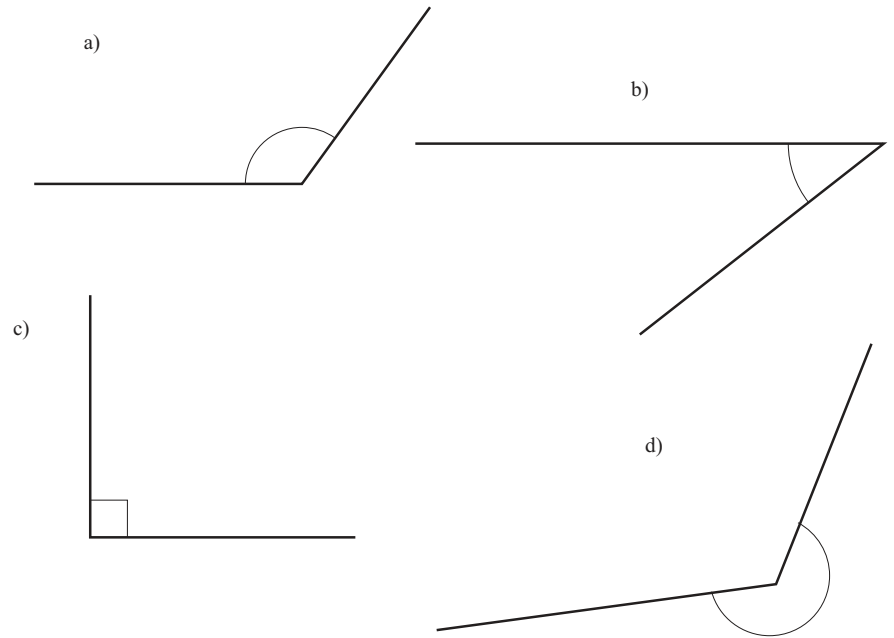


- 2) Two of these shapes are congruent.
Which are they?



Names of Angles

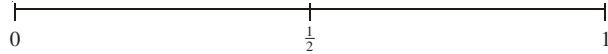
- 1) Write the name of each angle, below.



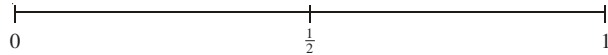
- 2) Draw a triangle which contains:
a) Three acute angles.
b) One obtuse angle and two acute angles.
c) A right angle.

The Probability Scale

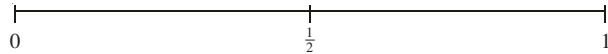
- 1) a) On the probability scale below, mark with a cross (×) the probability that it will snow in Birmingham in July.



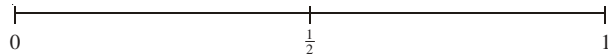
- b) On the probability scale below, mark with a cross (×) the probability that it will rain in Wales next year.



- c) On the probability scale below, mark with a cross (×) the probability that you will get a tail when you flip a fair coin.



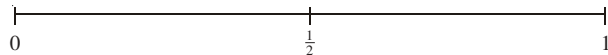
- d) On the probability scale below, mark with a cross (×) the probability that you will get a number bigger than 4 when you roll an ordinary dice.



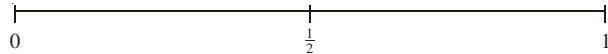
- 2) 4 jelly babies are in a bag. 2 are red, 1 is green and 1 is black.

Without looking in the bag, a jelly baby is taken out.

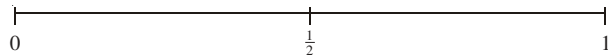
- a) On the probability scale below, mark with a cross (×) the probability that the jelly baby taken from the bag is green.



- b) On the probability scale below, mark with a cross (×) the probability that the jelly baby taken from the bag is green or black.



- c) On the probability scale below, mark with a cross (×) the probability that the jelly baby taken from the bag is red or black.



Tally Charts and Bar Charts

- 1) Here is a list of coins in Yvonne's purse.

5p £1 20p 1p 50p
10p £1 5p 50p 2p
5p 5p £1 1p 5p
£1 2p 5p 5p 2p

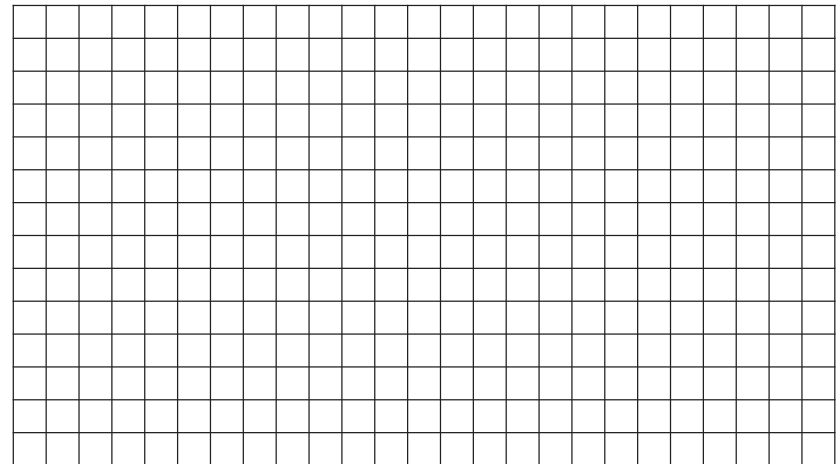
Coin	Tally	Frequency

Complete the table for this information.

- 2) Tim made a note of how many minutes he spent on the internet over the period of a week. His results are as follows:

Monday 20 mins
Tuesday 30 mins
Wednesday 60 mins
Thursday 40 mins
Friday 20 mins
Saturday 50 mins
Sunday 40 mins

Draw a bar chart to show this information.



Pictograms

- 1) The pictogram shows the number of watches sold by a shop in January, February and March.

January	
February	
March	
April	
May	

Key represents 4 watches.

- a) How many watches were sold in January?
b) How many **more** watches were sold in March than in February?

19 watches were sold in April.
14 watches were sold in May.

- c) Use this information to complete the pictogram.

- 2) The pictogram shows the number of DVDs borrowed from a shop on Monday and Tuesday.

Monday	
Tuesday	
Wednesday	
Thursday	

Key represents 10 DVDs.

- a) How many DVDs were borrowed on
(i) Monday?
(ii) Tuesday?

On Wednesday, 50 DVDs were borrowed.
On Thursday, 15 DVDs were borrowed.

- b) Show this information in the pictogram.

Adding Integers and Decimals

1) a)
$$\begin{array}{r} 42 \\ + 26 \\ \hline \end{array}$$
 b)
$$\begin{array}{r} 57 \\ + 38 \\ \hline \end{array}$$
 c)
$$\begin{array}{r} 96 \\ + 75 \\ \hline \end{array}$$

2) a)
$$\begin{array}{r} 637 \\ + 961 \\ \hline \end{array}$$
 b)
$$\begin{array}{r} 983 \\ + 442 \\ \hline \end{array}$$
 c)
$$\begin{array}{r} 969 \\ + 758 \\ \hline \end{array}$$

3) a) $452 + 38$ b) $147 + 763$ c) $813 + 431 + 38$

- 4) There were two exhibitions at the NEC one Sunday. 3816 people went to one of the exhibitions and 13427 people went to the other exhibition. How many people went to the NEC, in total, on the Sunday?

5) a) $2.6 + 1.2$ b) $2.74 + 6.81$ c) $45.36 + 6.81$

6) a) $23 + 1.5$ b) $13.6 + 38$ c) $13.2 + 17.82$

Subtracting Integers and Decimals

1) a) $\begin{array}{r} 78 \\ -42 \\ \hline \end{array}$ b) $\begin{array}{r} 74 \\ -26 \\ \hline \end{array}$ c) $\begin{array}{r} 62 \\ -39 \\ \hline \end{array}$

2) a) $\begin{array}{r} 485 \\ -291 \\ \hline \end{array}$ b) $\begin{array}{r} 773 \\ -486 \\ \hline \end{array}$ c) $\begin{array}{r} 100 \\ -34 \\ \hline \end{array}$

3) a) $653 - 48$ b) $362 - 183$ c) $2000 - 461$

- 4) There were two films showing at a cinema one Saturday. One of the films was shown in a large room and the other was in a smaller room.
The film in the larger room was watched by a total of 3562 people.
The film in the smaller room was watched by 1671 people.
How many more people saw the film in the larger room?

5) a) $782 + 426 - 278$ b) $8162 + 1149 - 799$

Multiplying Integers

- 1) Work out
- 13×18
 - 135×27
 - 116×41
 - 264×43
 - 326×24
 - 281×59
 - 286×48
 - 428×34
 - 461×45

- 2) "MathsWatch Travel" has 36 coaches. Each of these coaches can carry 53 passengers. How many passengers in total can all the coaches carry?
- 3) "MathsWatch Tours" has a plane that will carry 47 passengers. To fly from Manchester to Lyon, each passenger pays £65. Work out the total amount that the passengers pay.
- 4) A Science textbook costs £13. Mr Jones buys a class set of 34 books. How much do they cost him?
- 5) A graphical calculator costs £18. How much would 43 calculators cost?

Dividing Integers

- 1) Work out
- | | | |
|------------------|------------------|------------------|
| a) $325 \div 5$ | d) $377 \div 29$ | g) $75 \div 4$ |
| b) $448 \div 8$ | e) $27 \div 6$ | h) $135 \div 20$ |
| c) $221 \div 13$ | f) $123 \div 15$ | i) $381 \div 12$ |

- 2) A box can hold 19 books.
Work out how many boxes will be needed to hold 646 books.

- 3) The distance from Glasgow to Paris is 1290 km.
A flight from Glasgow to Paris lasts 3 hours.

Given that

$$\text{Average speed} = \frac{\text{Distance}}{\text{Time}}$$

Work out the average speed of the aeroplane in km/h.

- 4) Pencils cost 25p each.
Mr Smith spends £15 on pencils.
Work out the number of pencils he gets.
- 5) Yesterday, Gino was paid £19.61 for delivering pizzas.
He is paid 53p for each pizza he delivers.
Work out how many pizzas Gino delivered yesterday.
- 6) Emma sold 38 teddy bears for a total of £513
She sold each teddy bear for the same price.
Work out the price at which Emma sold each teddy bear.

- 7)

Canal boat for hire £1855.00 for 14 days
--

Work out the cost per day of hiring the canal boat.

- 8) A teacher has £539 to spend on books.
Each book costs £26
How many books can the teacher buy?
- 9) John delivers large wooden crates with his van.
The weight of each crate is 68 kg.
The greatest weight the van can hold is 980 kg.
Work out the greatest number of crates that the van can hold.