Name ..... Class .....

Non-Calculator Crossover Paper 8

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Non-Calculator

1 Work out an estimate for the value of $\frac{3.92^2 \times 51.3}{9.84}$

..... **(2)**

[Question 1: 2 marks]

2 (a) Write $6^4 \times 6^5 \div 6^3$ as a single power of 6

..... **(1)**

(b) Write down the value of 10^{-3}

..... **(1)**

[Question 2: 2 marks]

3 Kai spends $\frac{3}{8}$ of his money on a computer game.

He spends $\frac{1}{6}$ of his money on food.

What fraction of his money is left?

..... **(2)**

[Question 3: 2 marks]

4 Priya sees the same watch for sale in the UK and in Spain.

In the UK the watch costs £52.

In Spain the watch costs €62.10

The exchange rate is £1 = €1.15

In which country is the watch cheaper, and by how much?

Give your answer in pounds (£).

You must show your working.

.....

..... **(3)**

[Question 4: 3 marks]

5 Here are the first four terms of an arithmetic sequence.

40 37 34 31

(a) Find an expression, in terms of n, for the nth term of this sequence.

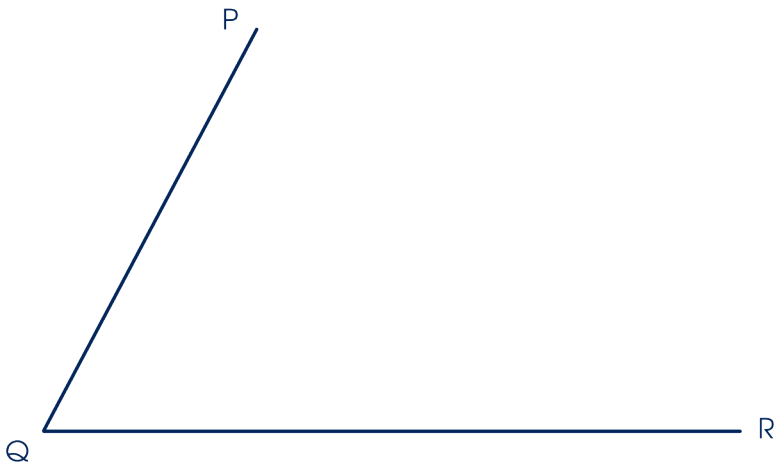
..... **(2)**

(b) Work out the 25th term of this sequence.

..... **(1)**

[Question 5: 3 marks]

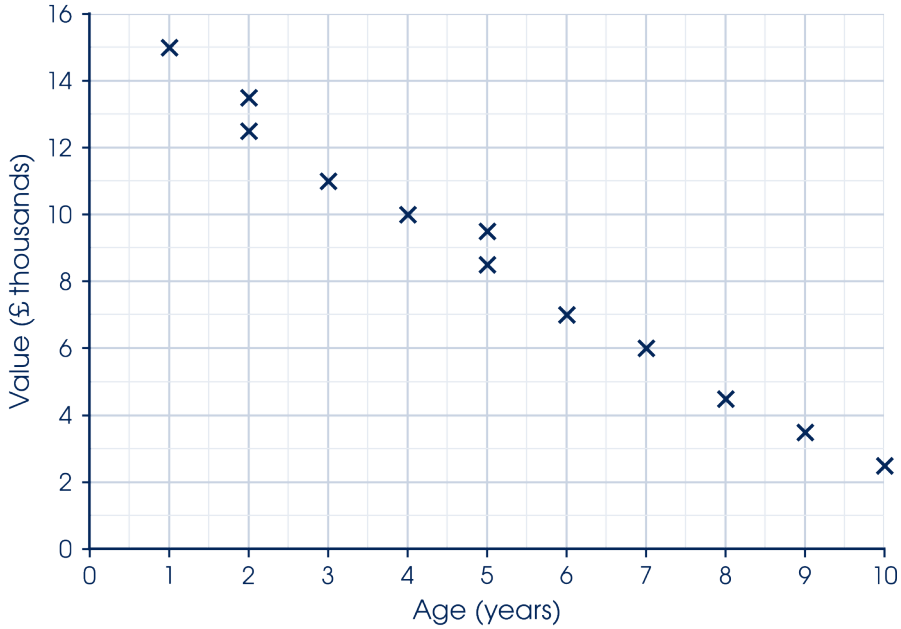
6 Use ruler and compasses to **construct** the bisector of angle PQR.
You must show all your construction lines.



(2)

[Question 6: 2 marks]

7 The scatter graph shows information about the age and the value of some used cars of the same model.



(a) Describe the relationship between the age of a car and its value.

.....

(1)

(b) A car of this model is $4\frac{1}{2}$ years old.

By drawing a suitable line, estimate the value of this car.

£.....

(2)

[Question 7: 3 marks]

8 (a) Expand and simplify $(x + 8)(x - 3)$

..... **(2)**

(b) Factorise $x^2 - 11x + 24$

..... **(2)**

[Question 8: 4 marks]

9 The diagram shows a circular pond with a path around it.

The pond is a circle of radius 3 m.

The path is 4 m wide all the way round the pond.

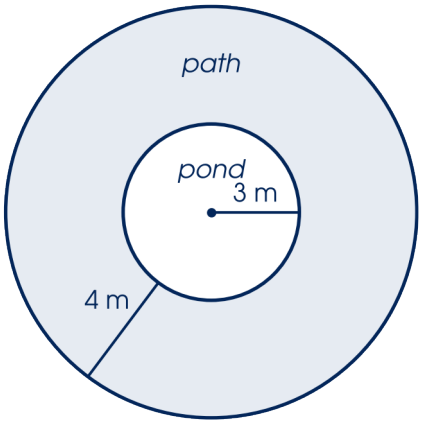


Diagram NOT accurately drawn

Work out the area of the path.

Give your answer in terms of π.

..... m^2 **(3)**

[Question 9: 3 marks]

10 The diagram shows a solid block of aluminium in the shape of a cuboid.

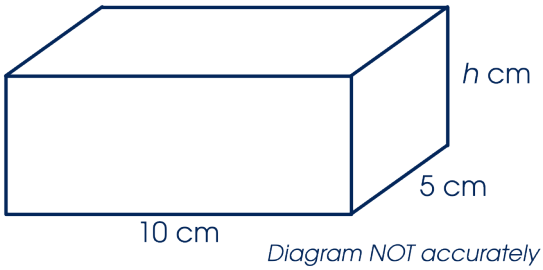


Diagram NOT accurately drawn

The block has a mass of 540 g.

The density of aluminium is 2.7 g/cm^3

Work out the value of h.

h = ... **(3)**

[Question 10: 3 marks]

11 Solve $\frac{3x + 5}{2} = 4x - 5$

x = ... **(3)**

[Question 11: 3 marks]

12 *ABC* is an isosceles triangle with *AB* = *AC*.

D is a point on *AC* such that *BD* = *BC*.

Angle *BAC* = 36°

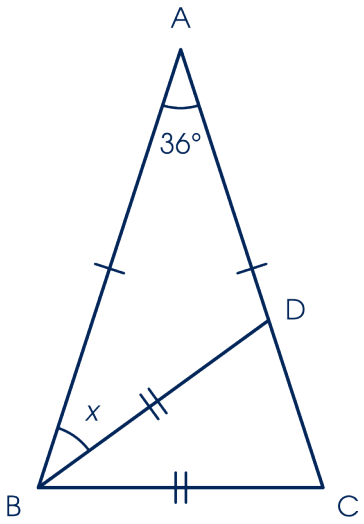


Diagram NOT accurately drawn

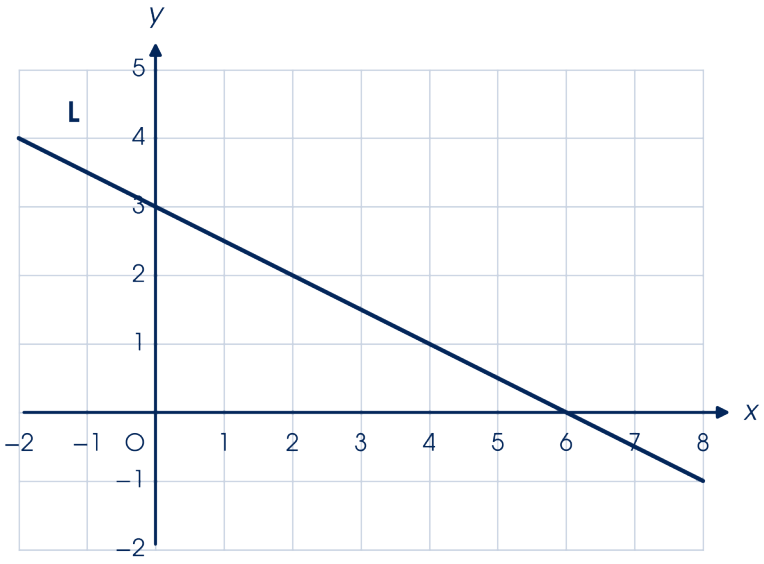
Work out the size of the angle marked *x*.

Give a reason for each stage of your working.

..... ° **(3)**

[Question 12: 3 marks]

13 The straight line **L** is drawn on the grid.



(a) Find the gradient of line **L**.

..... **(2)**

(b) Write down an equation of line **L**.

..... **(1)**

[Question 13: 3 marks]

14 There are 48 counters in a bag.

The counters are red, blue or yellow.

The probability that a counter taken at random from the bag is red is $\frac{3}{8}$

There are twice as many blue counters as yellow counters in the bag.

(a) A counter is taken at random from the bag.

Work out the probability that the counter is yellow.

..... **(3)**

(b) Ella takes a counter at random from the bag, writes down its colour and puts it back.

She does this 120 times.

Work out an estimate for the number of times she takes a red counter.

..... **(1)**

[Question 14: 4 marks]

TOTAL FOR PAPER IS 40 MARKS