

GCSE Mathematics

Bosworth Independent College Admissions Test

Name:

Instructions

- The time for the test is 60 minutes.
- Answer **all questions**.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- **Calculators are NOT allowed.**
- **You must show all your working.**
- **No rough paper allowed.** Extra paper may be provided, but must be submitted for marking.

Information

- The total mark for this paper is 60.
- **There is no formulae sheet.**
- The marks for each question are shown in brackets.
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- If you cannot do a question, move onto another one.
- Return at the end to those questions you have left out.
- Check your answers if you have time at the end.

Answer All Questions

Q1.



Find the number 3.6 on the number line above.
Mark the number with an arrow (\uparrow).

(1)

(Total for Question is 1 mark)

Q2.

(a) Write down the value of $(-7)^2$

.....

(1)

(b) Write down the value of $\sqrt{81}$

.....

(1)

(Total for Question is 2 marks)

Q3.

(a) Write the number **7378** to the nearest hundred in words

.....

(2)

(b) Work out 5.4×6.1

.....

(3)

(c) Work out $\frac{1}{4}$ of 28 kg.

..... kg

(1)

(d) Work out $9 - 12 \div 3$

.....

(1)

(Total for question = 7 marks)

Q4.

Here are five number cards.



They are placed on the table to make a five digit number, for example, 17343 or 31347

(a) Write down the **largest even** number that can be made with the five cards.

.....

(2)

One of the five cards is taken at random

(b) Write down the probability that the card will **not** have the number 7 on it.

.....

(1)

(Total for question = 3 marks)

Q5.

Write these numbers in order of size.
Start with the smallest number.

35% $\frac{3}{10}$ 0.32 $\frac{2}{5}$ 0.25

(Total for question = 2 marks)

Q6. Work out

$$1\frac{2}{3} \div \frac{3}{4}$$

(2)

(Total for question = 2 marks)

Q7.

(a) Simplify $4e - 6d + 11e + 2d + f$

.....
(1)

(b) Simplify $p \times r \times 3$

.....
(1)

(c) Factorise fully $2a^2 - 4a$

.....
(1)

$$k = 5$$

$$m = 3$$

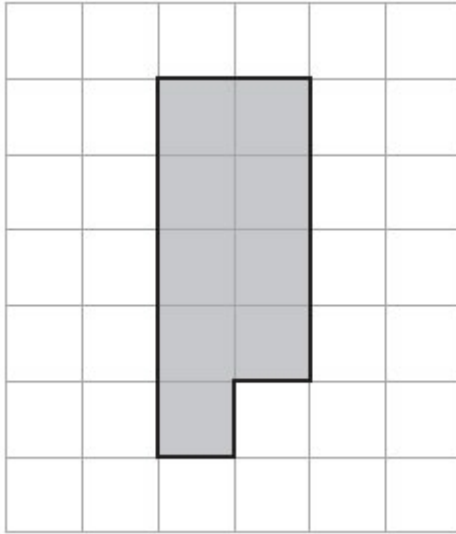
(d) Work out the value of $2k + 4m$

.....
(2)

(Total for Question is 5 marks)

Q8.

The shaded shape is drawn on a grid of centimetre squares.

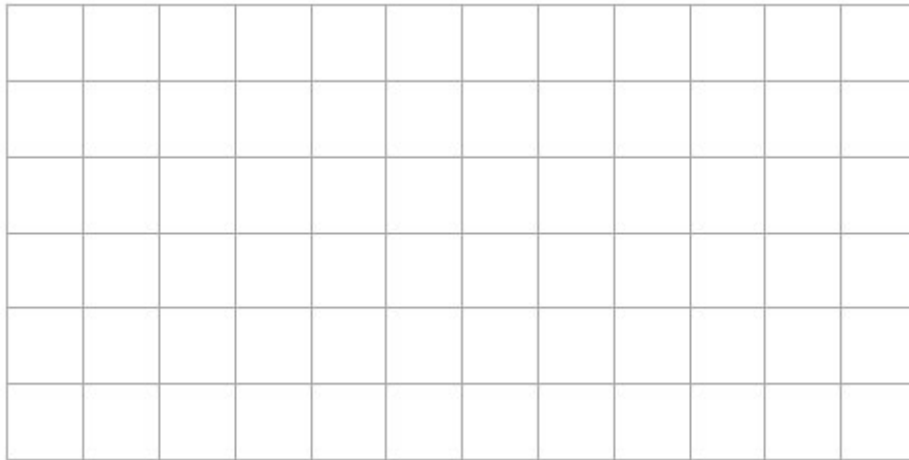


(a) Find the perimeter of the shaded shape.

.....

(1)

(b) On the grid below, draw a square with the same area as the shaded shape.



(1)

(Total for Question is 2 marks)

Q9.

Daniel buys

one loaf of bread costing £1.18

one tub of spread costing 94p

two jars of strawberry jam.

Daniel pays with a £5 note.

He gets 30p change.

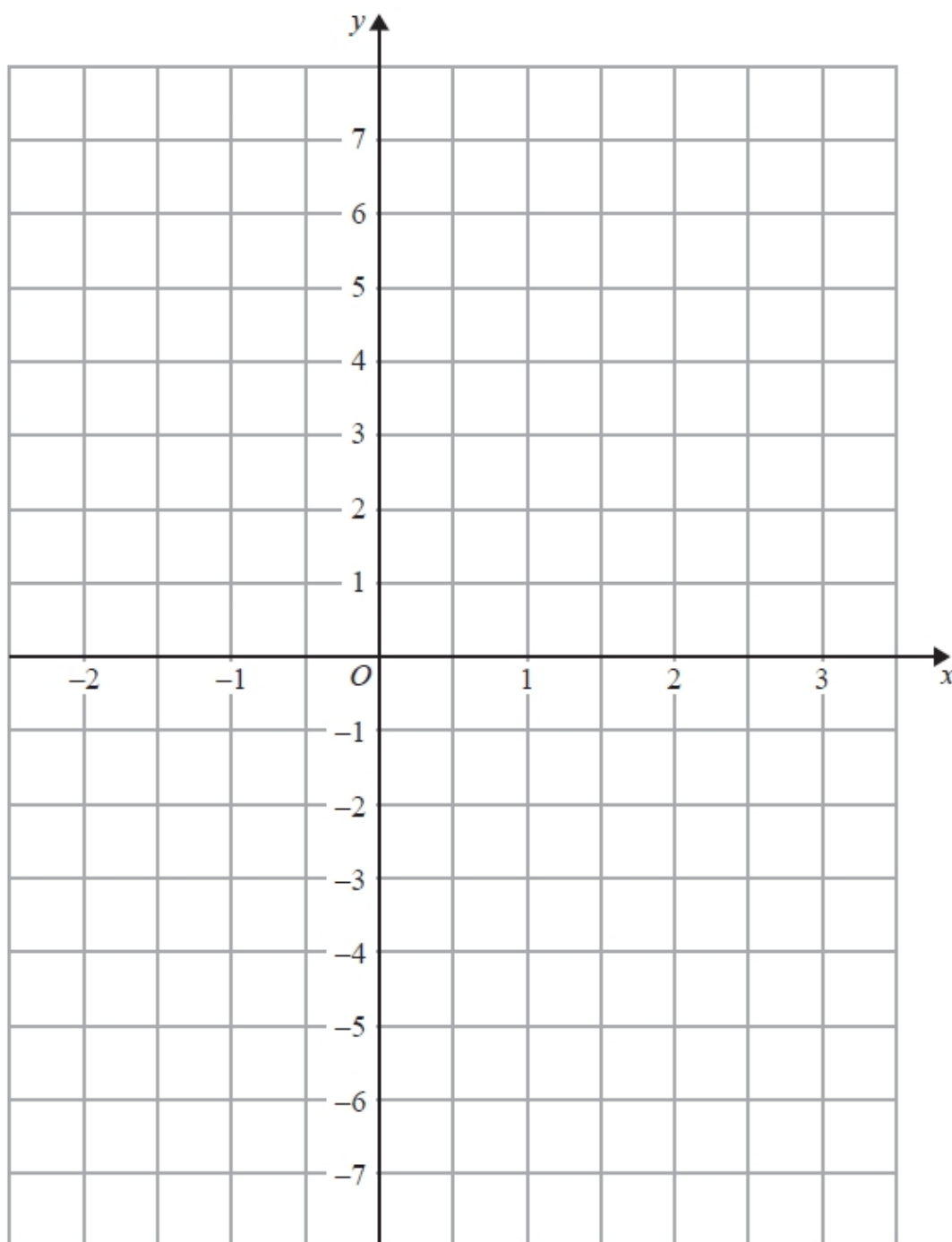
Work out the cost of **one** jar of strawberry jam.

£

(Total for Question is 3 marks)

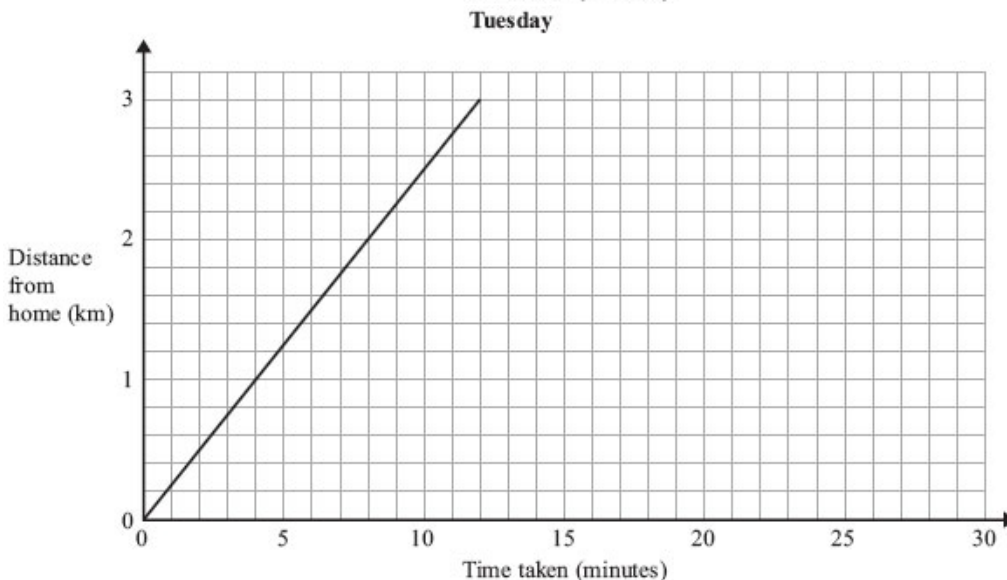
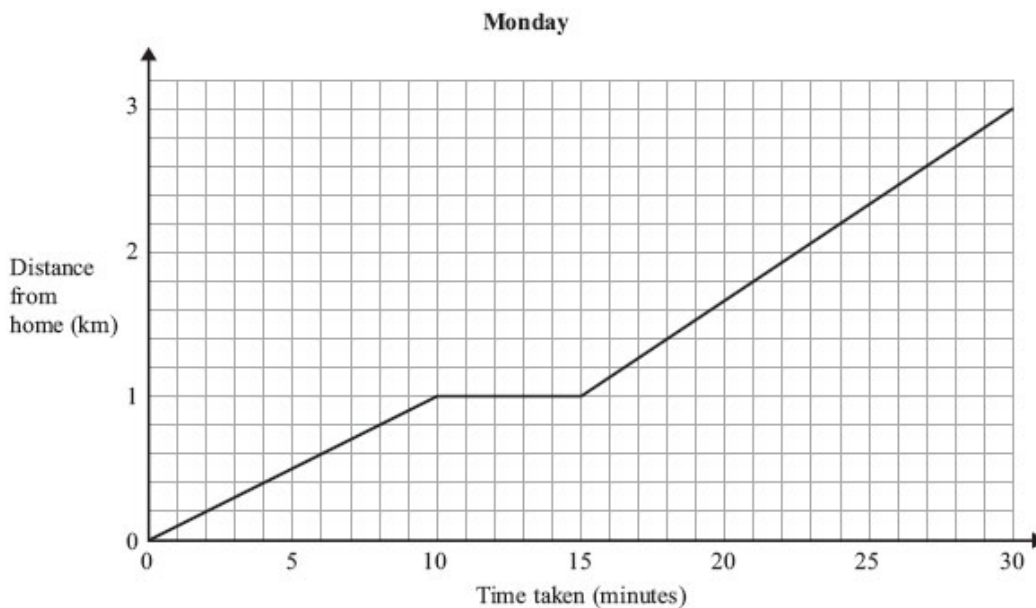
Q10.

On the grid, draw the graph of $y = 2x - 3$ for values of x from -2 to 3



(Total for question = 3 marks)

- Q11.** On Monday, Holly walked from her home to school.
 She stopped at her friend's house on the way to school.
 On Tuesday, Holly cycled from her home to school.
 The travel graphs show Holly's journey on Monday and on Tuesday.



(a) Write down the distance from Holly's home to school.

..... km

(1)

(b) Write down how long Holly stopped at her friend's house on Monday.

..... minutes

(1)

Holly took less time to get to school on Tuesday than on Monday.

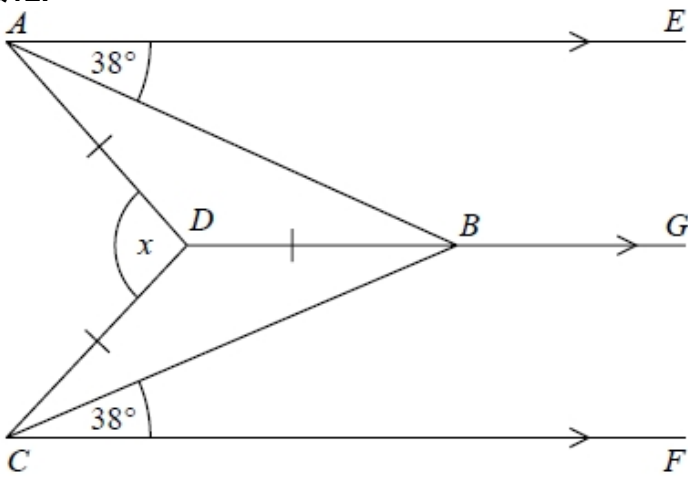
(c) How many minutes less?

..... minutes

(2)

(Total for Question is 4 marks)

Q12.



AE , DBG and CF are parallel. $DA = DB = DC$. Angle $EAB = \text{angle } BCF = 38^\circ$

Work out the size of the angle marked x . You must show your working.

.....°

(Total for question = 3 marks)

Q13.

There are 15 children at a birthday party.
The mean age of the 15 children is 7 years.

9 of the 15 children are boys.
The mean age of the boys is 5 years.

Work out the mean age of the girls.

..... years

(Total for question = 3 marks)

Q14.

(a) Solve $3x - 5 < 16$

.....

(2)

(b) Solve $\frac{11-w}{4} = 1 + w$

$w = \dots\dots\dots$

(3)

(c) Solve the equation $x^2 - 12x + 27 = 0$

.....

..
(3)
(Total for question = 8 marks)

Q15.

Bill gives away £20000 to help animals.

He gives 25% of the £20000 to a donkey sanctuary.

He shares the rest of the £20000 between a dogs' home and a cats' home in the ratio 3 : 2

How much money does Bill give to the cats' home?

.....

(Total for Question is 4 marks)

Q16.

(a) Simplify m^0

.....
(1)

(b) Simplify $(2x^6y^1)^3$

.....
(2)

(c) Simplify $6a^2b^6 \div 2ab^2$

.....
(2)

(Total for Question is 5 marks)

Q17.

ABD is a right angled triangle.

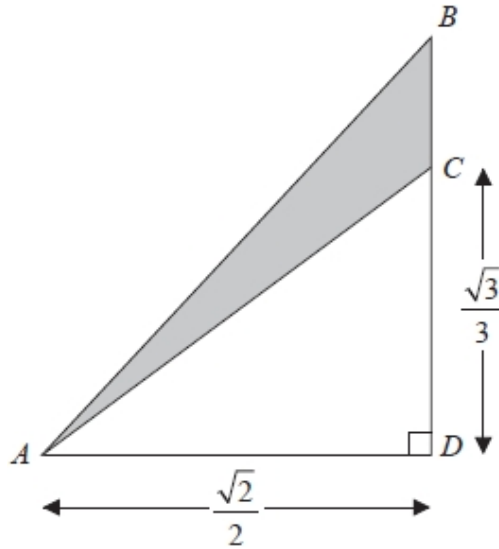


Diagram NOT
accurately drawn

All measurements are given in centimetres.

$$AD = BD$$

Find the area of the shaded region in exact form. (Leave the $\sqrt{\quad}$ sign(s) in your answer)

..... cm²

(Total for question = 3 marks)

TOTAL FOR PAPER 60 MARKS

END OF QUESTIONS