WJEC CBAC

GCSE

185/07

MATHEMATICS
FOUNDATION TIER
PAPER 1

A.M. THURSDAY, 5 November 2009

2 hours

CALCULATORS ARE NOT TO BE USED FOR THIS PAPER

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	11	
2	8	
3	6	
4	4	
5	4	
6	5	
7	7	
8	3	
9	6	
10	6	
11	6	
12	6	
13	7	
14	4	
15	3	
16	4	
17	5	
18	5	
TOTAL MARK		

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.
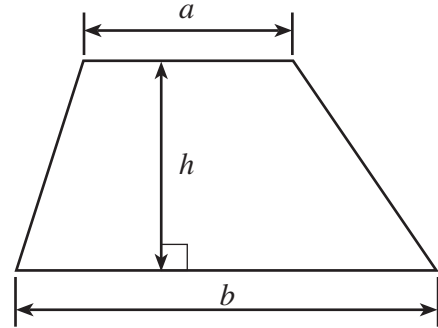
Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.
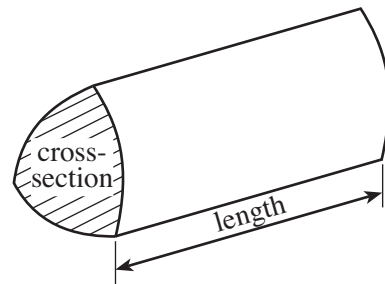
The number of marks is given in brackets at the end of each question or part-question.

Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$

Volume of prism = area of cross-section × length

1. *(a)* (i) Write down, in figures, the number forty three thousand and seventy four.

....

(ii) Write down, in words, the number 7 900 000.

....

[2]

(b) Using only the numbers in the following list,

43   36   48   47   54   44   57

write down

(i) two numbers that add up to 80,

....

(ii) the number which must be added to 45 to make 92,

....

(iii) a multiple of 8.

....

[3]

(c) Write 97 645

(i) correct to the nearest 100,

....

(ii) correct to the nearest 1000.

....

[2]

(d) Write down all the factors of 21.

....

....

....

[2]

(e) How many packets of paper each costing £5.99 can be bought for £40?

....

....

....

[2]

Turn over.

2. In a holiday camp Rachel carried out a survey of the children present to find out from which country the children had come. Her results are shown below.

Country	Wales	England	Scotland	Ireland
Number of children	40	70	35	25

(a) Draw a pictogram to represent the above information, using ⊞ to represent 20 children.

Wales	
England	
Scotland	
Ireland	

[4]

(b) On the graph paper below draw a bar chart to represent the information.

[4]

Turn over.
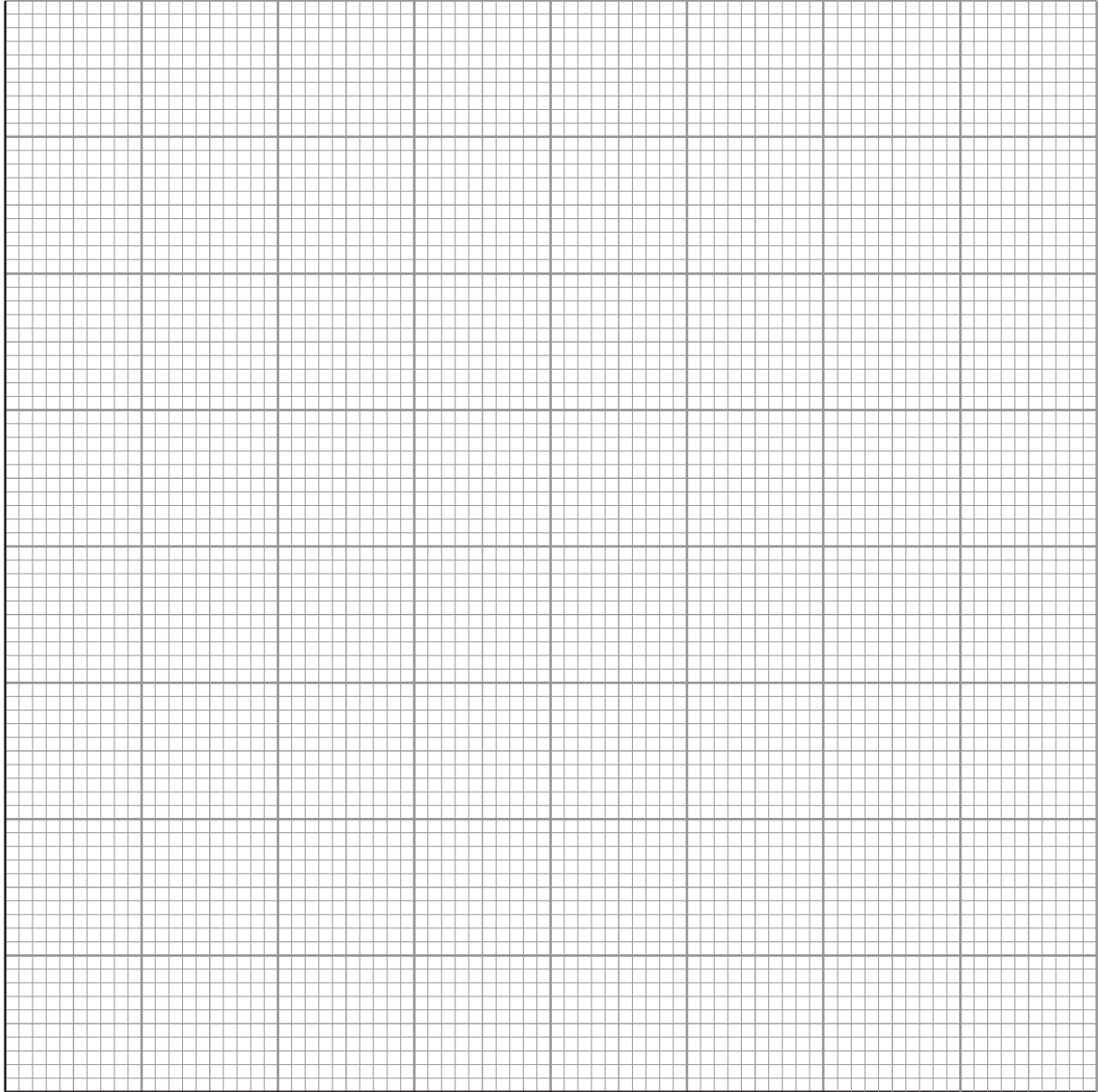
3. *(a)* Write down the next term in **each** of the following sequences.

(i) 6, 10, 14, 18, ...

(ii) 100, 91, 82, 73, ...

....

....

[2]

(b) What is the value of the 7 in the number 3762?

....

[1]

(c) Write $\frac{1}{4}$ as a decimal ....

Write 27% as a decimal ....

Write $\frac{1}{4}$, 27% and 0·23 in ascending order.

....

....

....

....

[3]

4.

| 3 | 1 | 3 | 2 | 3 | 3 | 1 | 4 |

Tim has eight cards as shown above.

(a) Tim chooses one card at random.
Write down the number most likely to be on the chosen card.

....
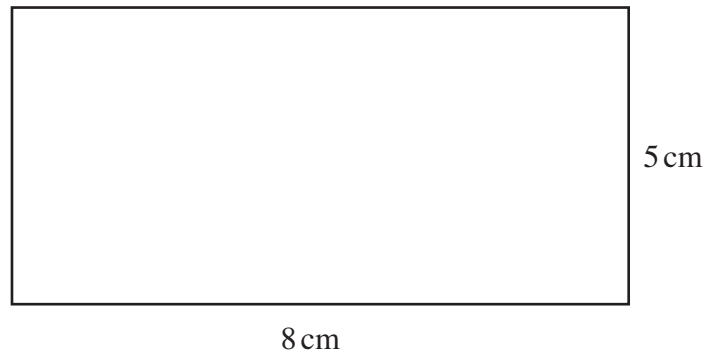
[1]

(b) On the probability scale shown below, mark the points A, B and C where:

A is the probability of Tim choosing a card with 5 on it.

B is the probability of Tim choosing a card with 3 on it.

C is the probability of Tim choosing a card with 4 on it.

0   1

[3]

Turn over.

5. The diagram shows an 8 cm by 5 cm rectangle.

5 cm

8 cm

Diagram not drawn to scale.

(a) Calculate the area of the rectangle, giving the units of your answer.

....

....

....

[3]

(b) Calculate the perimeter of the rectangle.

....

....

....

[1]

6. The following patterns have been made using black and white discs.
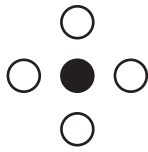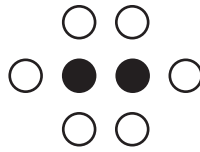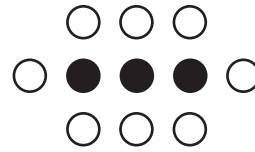
Pattern 1   Pattern 2   Pattern 3

(a) Draw Pattern 4 in the space below.

[1]

(b) Complete the following table.

Pattern	1	2	3	4	5
Number of black discs	1	2	3	4	5
Number of white discs	4	6	8		

[2]

(c) Without drawing any more patterns, answer the following two questions.

(i) Write down the number of black discs in Pattern 50.

....

(ii) There are 100 white discs in Pattern 49.
How many white discs are there in Pattern 50?

....

....

[2]

Turn over.

7. *(a)* There are 48 cans in a box.
A store has 1248 cans in stock.
How many boxes is this?

[3]

(b) Calculate $\frac{2}{5}$ of 45.

[2]

(c) Calculate 6% of 400.

[2]

8. Plot the points A(4, 2), B(–2, 0) and C(–3, –4).

[3]

Turn over.
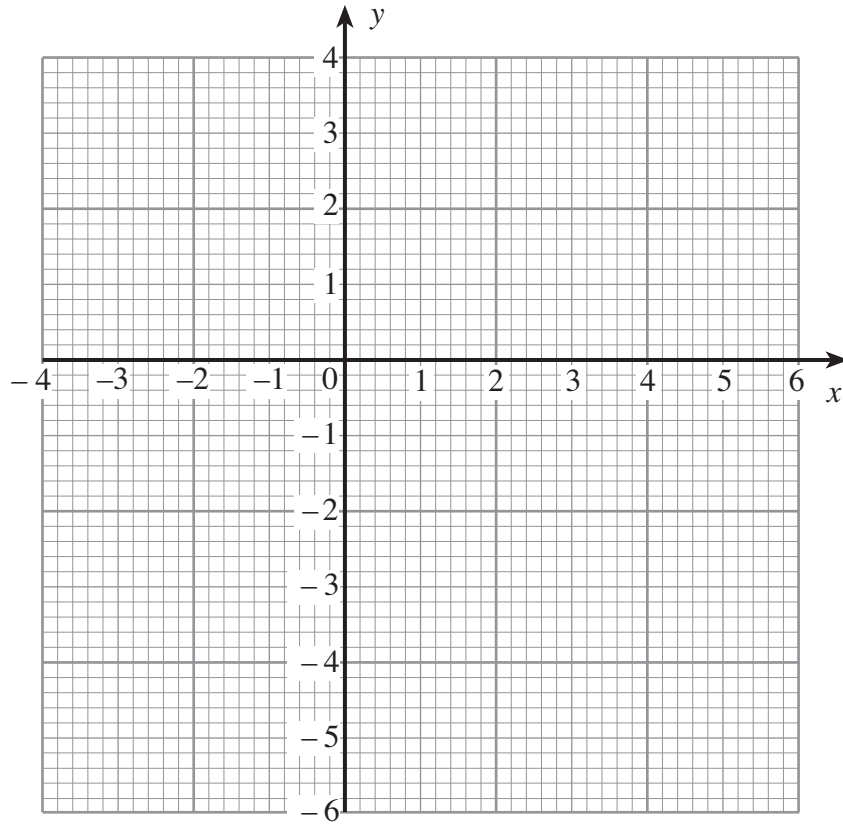
9. *(a)* Adrian has x pence.
Cheryl has 10 pence more than Adrian.
Write down, in terms of x, the number of pence that Cheryl has.

....
[1]

(b) A shirt has 8 buttons.
Write down, in terms of y, the number of buttons on y shirts.

....
[1]

(c) A ruler is r cm long.
Write down, in terms of r, the length of a line which is 6 cm shorter than the length of the ruler.

....
[1]

(d) Solve $y + 10 = 3$.

....
[1]

(e) Simplify $6a - 4t + 2a + t$.

....

....

....

....

....
[2]

10. *(a)* Find the size of the angle marked x.
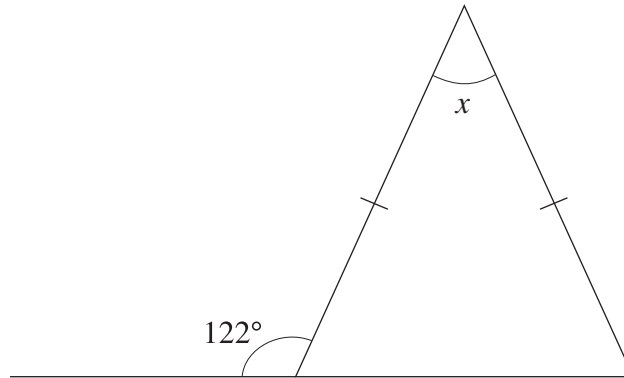
Diagram not drawn to scale.

....

....

....

$x =$ .... °

[3]

(b) Find the size of the angle marked y.
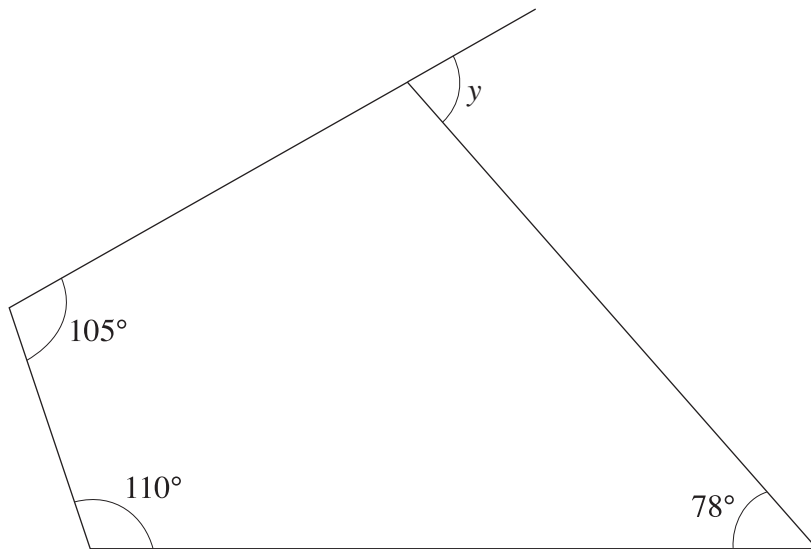
Diagram not drawn to scale.

....

....

....

$y =$ .... °

[3]

Turn over.

11. Peter has a fair cubical dice numbered 1 to 6.
Peter also has a pack of cards, half of which are red cards and half of which are blue cards.

In an experiment, the dice is thrown and the score is noted, and a card is chosen from the pack and the colour is noted.

(a) List all the possible outcomes.
Two have been done for you:

1, red

2, red

[2]

(b) What is the probability that Peter gets a 5 and a red card?

[2]

(c) What is the probability that Peter gets a number less than 3?

[2]

12. For each of the following statements, circle whether it is true or false.
You **must** give an explanation for your choice.

(a) All whole numbers that are divisible by 5 end in a 5.

True / False

....

....
[2]

(b) If you halve a whole number ending in a 4 you will always get a number ending in a 2.

True / False

....

....
[2]

(c) If you multiply any whole number by the one after it, the result is always an even number.

True / False

....

....
[2]

Turn over.

13. *(a)* Calculate the area of the following triangle.

6 cm

8 cm

10 cm
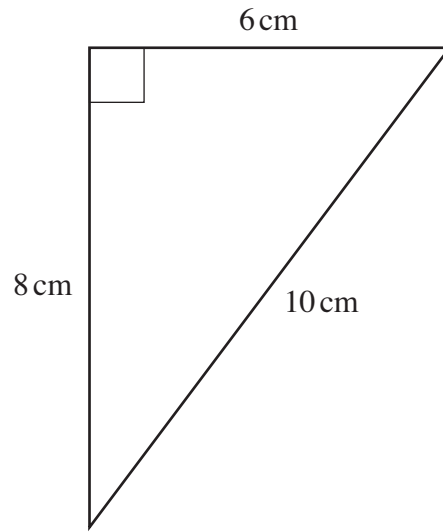
Diagram not drawn to scale.

....

....

....

[2]

(b) Calculate the perimeter of the shape shown in the diagram below.

9 cm

6 cm

12 cm

13 cm

14 cm

Diagram not drawn to scale.

....

....

....

....

....

....

[2]

(c)
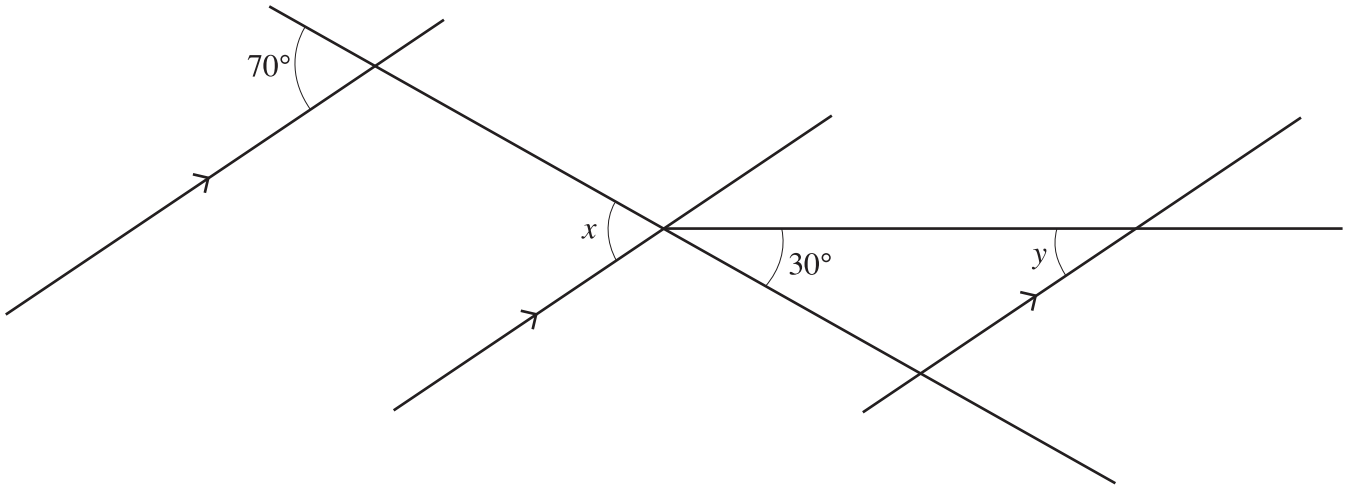
Diagram not drawn to scale.

Find the sizes of the angles marked x and y.

....
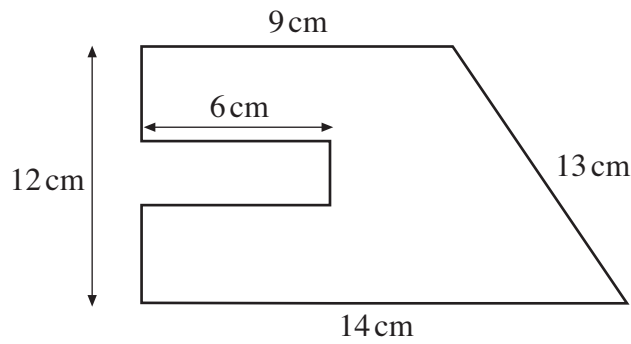
....

$x =$ .... ° $y =$ .... °

[3]

14. Five numbers have a median of 9, a mode of 10, a range of 5 and mean of 8.
Find the five numbers.
Write your numbers in order in the boxes.

....

....

....

....
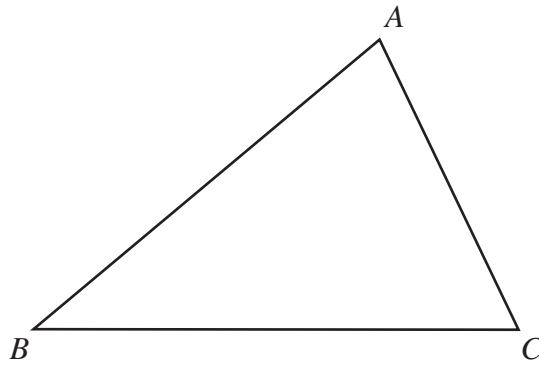
[ ] [ ] [ ] [ ] [ ]

[4]

Turn over.

15. Find and shade the region of points inside triangle *ABC* that satisfy both the following conditions.

   (i)   The points are nearer to *BC* than to *AB*.
   (ii)   The points are less than 5 cm from *B*.

[3]

16. *(a)* Factorise $y^2 - 4y$.

....

....

[1]

   (b) Solve $7x - 13 = 3(x - 1)$.

....

....

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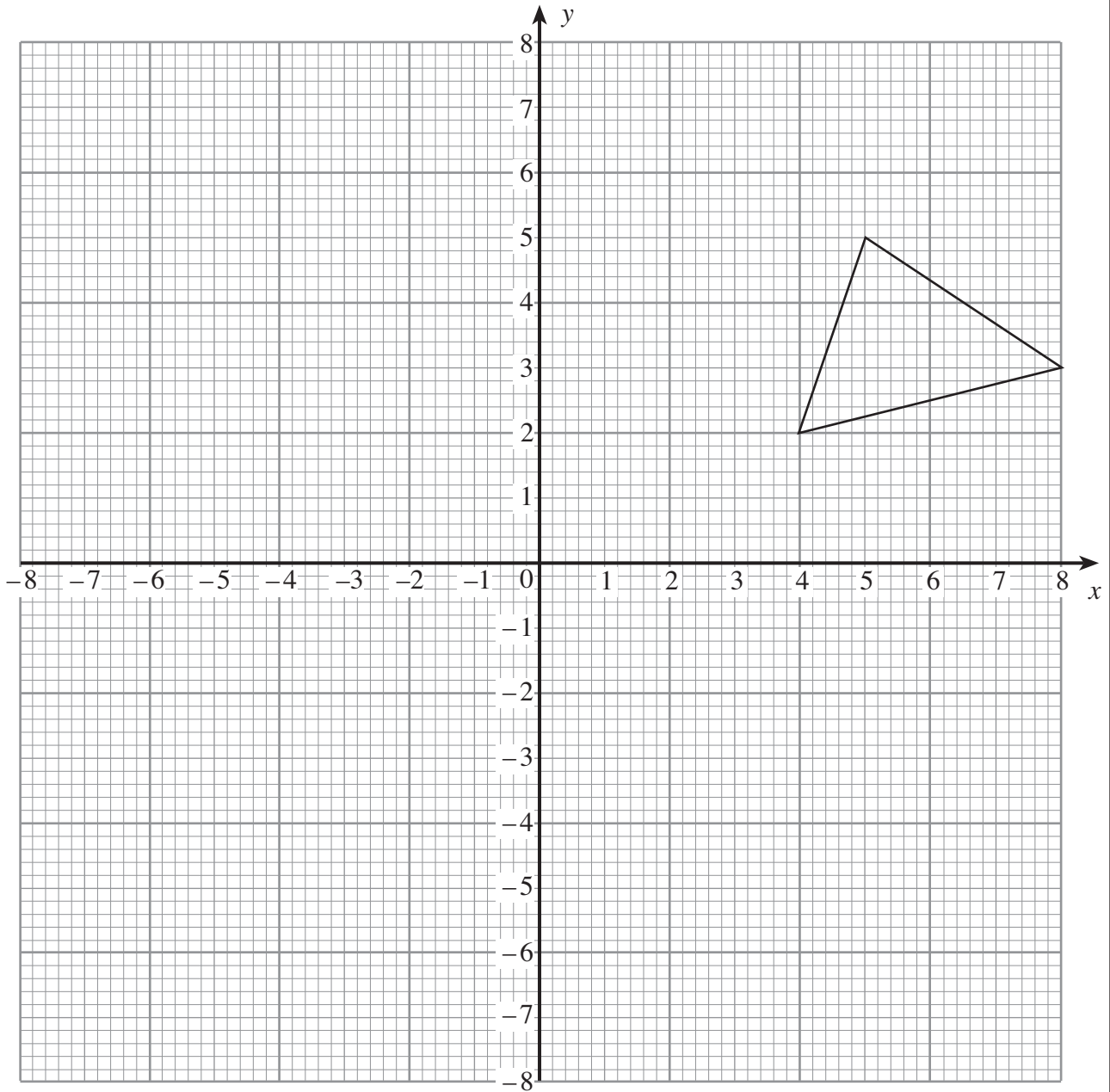
[3]

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Turn over.

17. *(a)* On the grid below, draw the enlargement of the given shape using a scale factor of 3 and centre *O*.

[3]

(b) Rotate the triangle through 90° anticlockwise about the point (3, 1).

[2]

Turn over.

18. *(a)* Share £600 in the ratio 3 : 2.

....

....

....

[2]

(b) Express 126 as a product of prime numbers using index notation.

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....

[3]