For AQA

Name

General Certificate of Secondary Education

MATHEMATICS (MODULAR)

Module 5 Foundation Tier **F**

Paper A1 Non-Calculator

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.

Time allowed: 1 hour 15 minutes

Instructions and Information

- Write your name in the box at the top of the page.
- Answer **all** questions in the spaces provided.
- The maximum mark for this paper is 70.
- The marks for questions are shown in brackets.

Advice

- In all calculations, show clearly how you work out your answer.

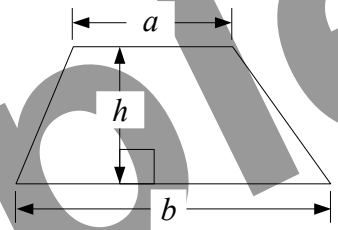
Churchill Maths

Written by Shaun Armstrong

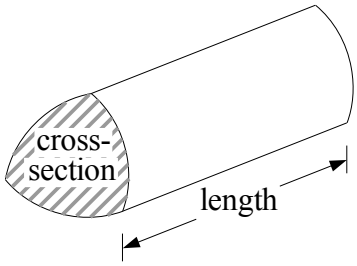
Formulae Sheet: Foundation Tier

You may need to use the following formulae:

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

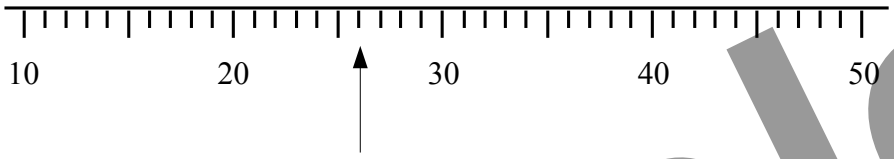


Volume of a prism = area of cross-section × length



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

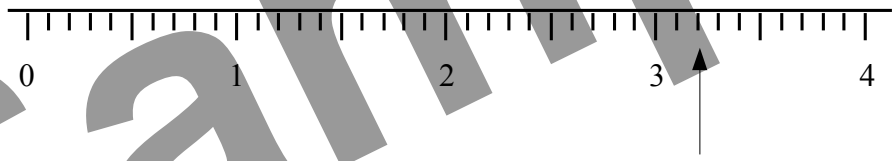
1 (a)



Write down the number shown by the arrow.

Answer ..... *(1 mark)*

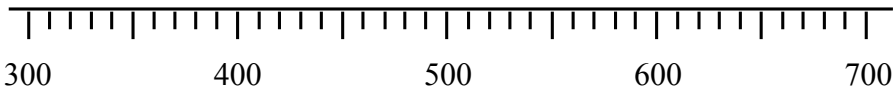
1 (b)



Write down the number shown by the arrow.

Answer ..... *(1 mark)*

1 (c)



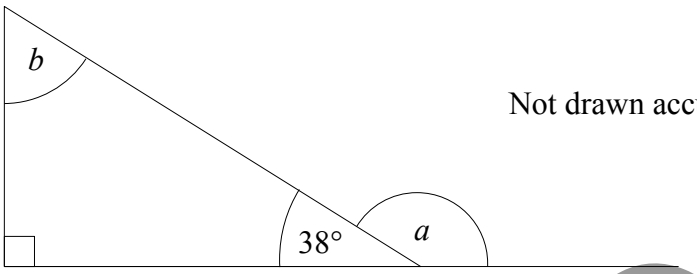
Draw an arrow on the diagram to show the number 370.

(1 mark)

3

Turn over ▶

2



Not drawn accurately

2 (a) (i) Work out the size of angle *a*.

……

Answer *a* = …… degrees *(1 mark)*

2 (a) (ii) Give a reason for your answer.

……

……

(1 mark)

2 (b) (i) Work out the size of angle *b*.

……

……

Answer *b* = …… degrees *(1 mark)*

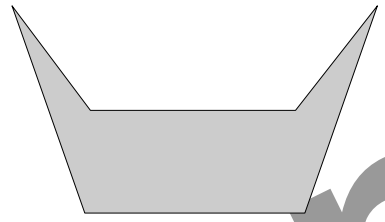
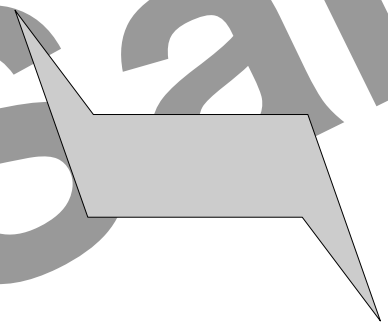
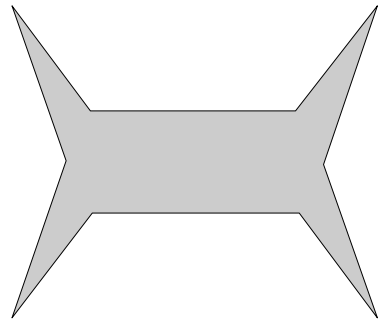
2 (b) (ii) Give a reason for your answer.

……

……

(1 mark)

3 Tick (✓) each box in the table below if the shape has the stated symmetry.

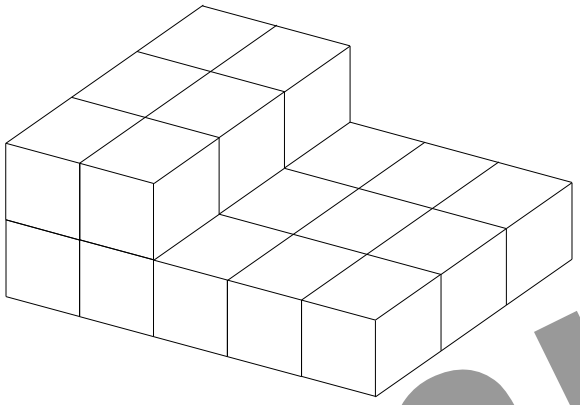
	Exactly one line of symmetry	Exactly two lines of symmetry	Rotational symmetry of order 2
			
			
			

(4 marks)

8

Turn over ▶

4



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Work out the volume of this prism made from centimetre cubes.

……

……

……

……

Answer …… cm^3 *(2 marks)*

5 (a) Which two of these fractions are equivalent to $\frac{3}{4}$?

$\frac{12}{20}$ $\frac{8}{10}$ $\frac{6}{8}$ $\frac{16}{24}$ $\frac{21}{28}$ $\frac{15}{18}$ $\frac{25}{36}$

……

……

Answer …… and …… *(2 marks)*

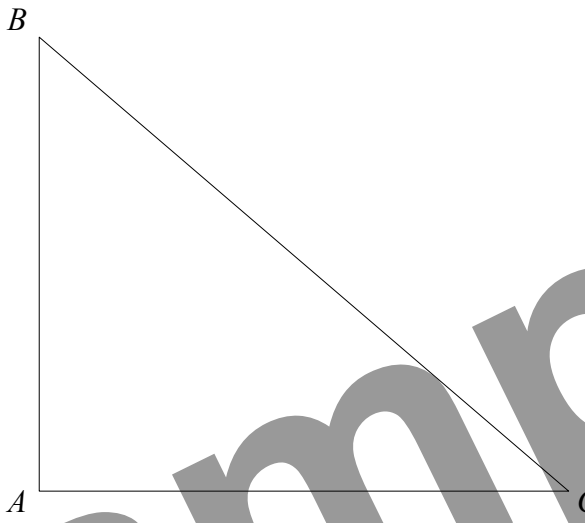
5 (b) Express $\frac{27}{45}$ as a fraction in its simplest form.

……

……

Answer …… *(2 marks)*

6



ABC is a triangle.

Shade the region inside the triangle which is less than 4 cm from the point *C*.

(2 marks)

7 (a) Work out the value of $2^3 \times 10^2$

……

……

Answer …… *(2 marks)*

7 (b) Write as a power of 6

7 (b) (i) $6^7 \times 6^8$

……

Answer …… *(1 mark)*

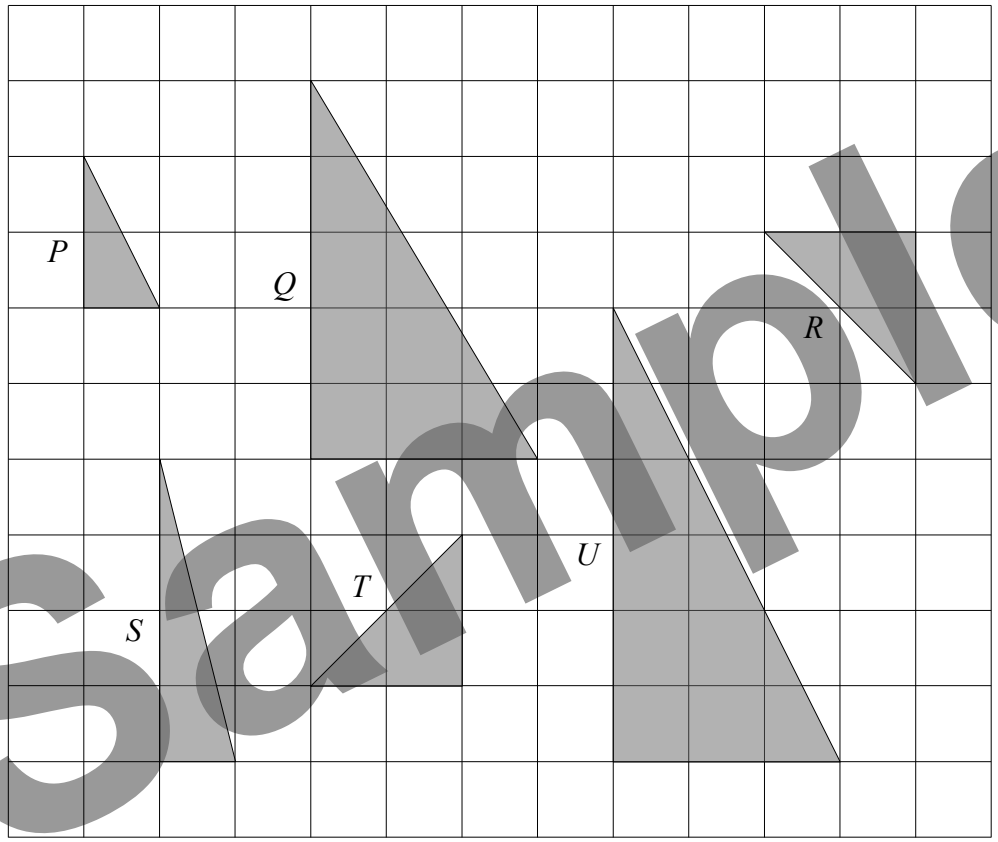
7 (b) (ii) $6^{11} \div 6^2$

……

Answer …… *(1 mark)*

12

8



Six right-angled triangles are shown on the grid.

8 (a) Which two triangles are congruent?

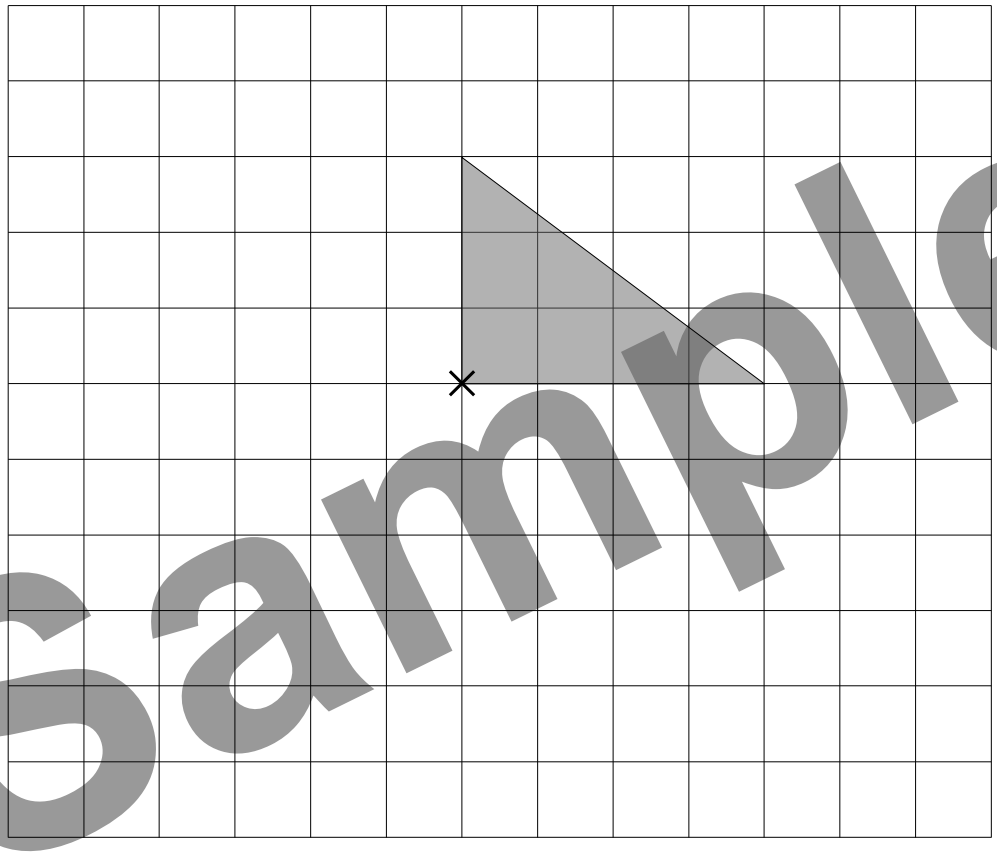
Answer …… and …… *(1 mark)*

8 (b) (i) Which triangle is an enlargement of triangle *P*?

Answer …… *(1 mark)*

8 (b) (ii) Write down the scale factor of the enlargement.

Answer …… *(1 mark)*



8 (c) On the grid, rotate the shaded triangle 90° clockwise about the point marked with a cross.

(2 marks)

9 (a) Expand $3(x + 4)$

……

Answer …… *(1 mark)*

9 (b) Factorise $y^2 + 7y$

……

Answer …… *(1 mark)*

9 (c) Work out the value of $2p - 3q$ when $p = 12$ and $q = 5$.

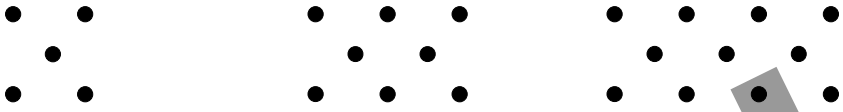
……

……

Answer …… *(2 marks)*

9

10 Here are some patterns made with dots.



Pattern number 1 Pattern number 2 Pattern number 3

10 (a) In the space below, draw Pattern number 4.

(1 mark)

10 (b) How many dots will there be in

10 (b) (i) Pattern number 5,

……

Answer …… *(1 mark)*

10 (b) (ii) Pattern number 10.

……

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Answer …… *(1 mark)*

10 (c) Find an expression, in terms of n, for the number of dots in Pattern number n.

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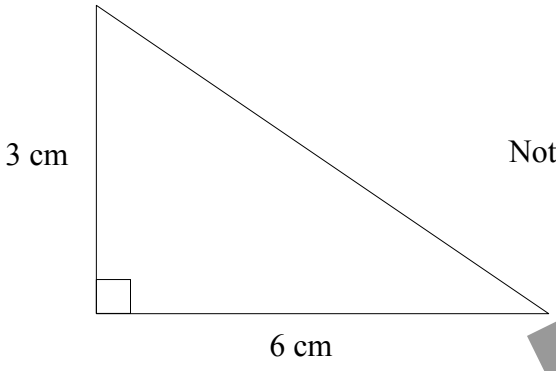
Answer …… *(3 marks)*

11



The diagram shows a right-angled triangle.

11 (a) Work out the area of the triangle.

……

……

Answer …… cm^2 *(2 marks)*

The triangle is the cross-section of a prism of length 8 cm.

11 (b) Work out the volume of the prism.

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Answer …… cm^3 *(2 marks)*

10

12 (a) On the grid, draw the graph of $y = 2x - 3$

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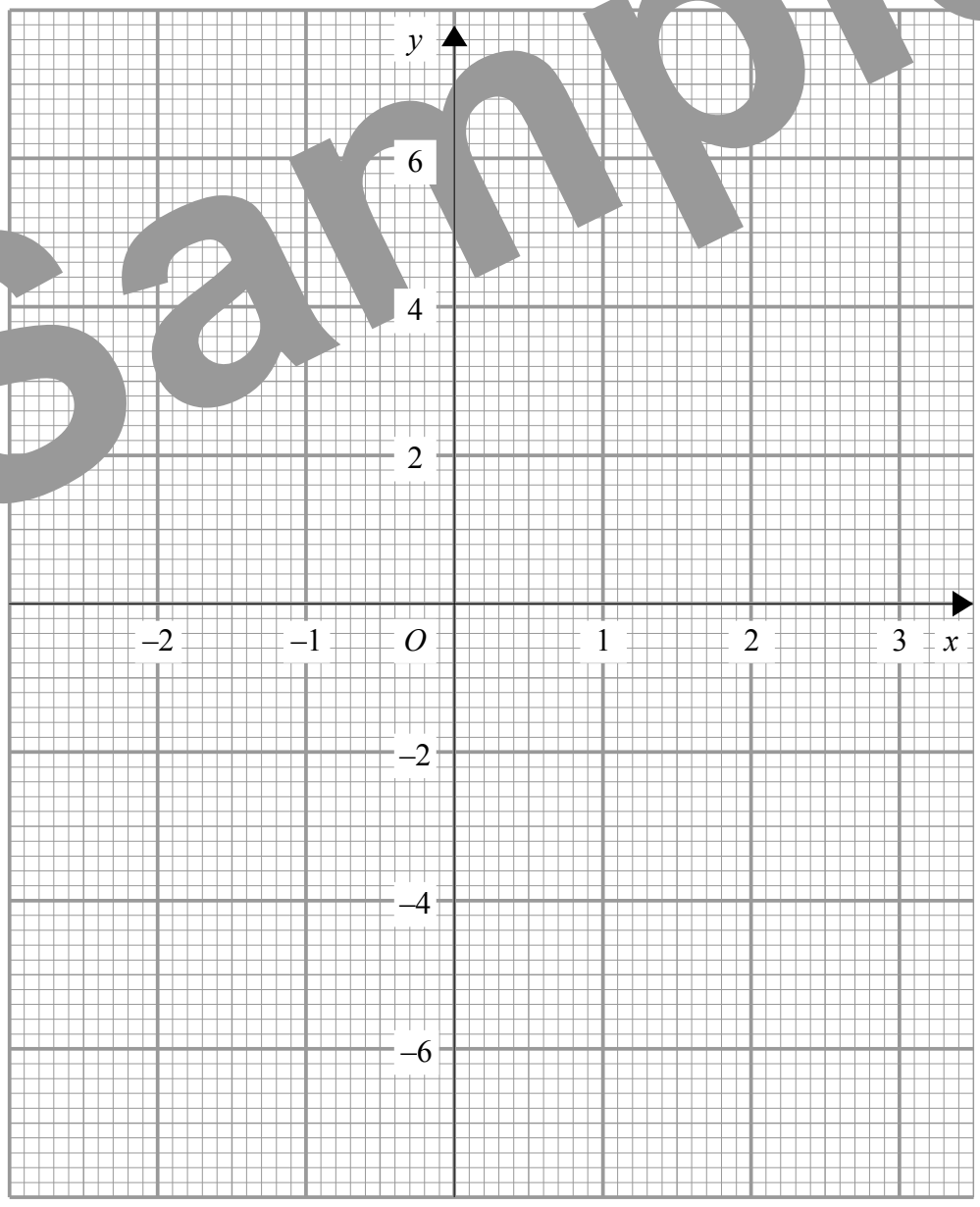
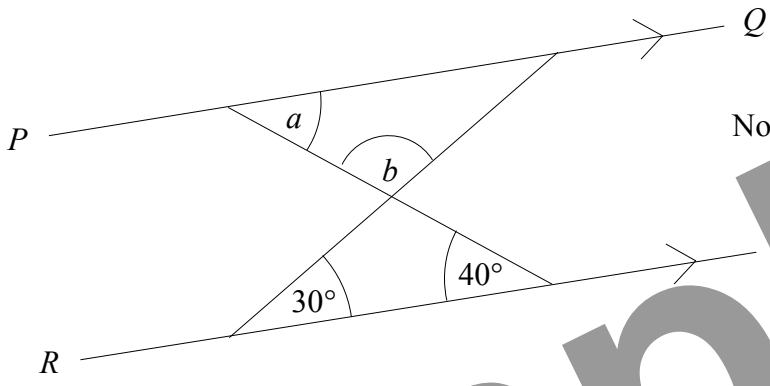


(3 marks)

12 (b) Use your graph to solve the equation $2x - 3 = 1.4$

Answer $x =$ ..... *(1 mark)*

13 (a)



Not drawn accurately

The lines PQ and RS are parallel.

13 (a) (i) Write down the size of the angle marked a.
Give a reason for your answer.

Answer a = …… degrees

Reason ……

(2 marks)

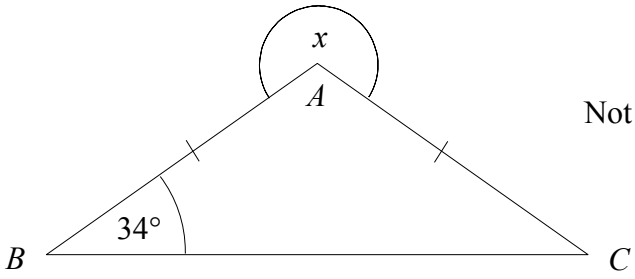
13 (a) (ii) Find the size of the angle marked b.

……

……

Answer b = …… degrees *(2 marks)*

13 (b)



Not drawn accurately

In the diagram, $AB = AC$ and angle $ABC = 34°$.

Find the size of the angle marked x.

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……

Answer x = …… degrees *(3 marks)*

11

14 Solve

14 (a) $a + 5 = 11$

……

Answer $a =$ …… *(1 mark)*

14 (b) $2t - 1 = 19$

……

……

Answer $t =$ …… *(2 marks)*

14 (c) $3(y - 4) = 2y$

……

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……

……

Answer $y =$ …… *(3 marks)*

15 $-1 \leq x < 3$

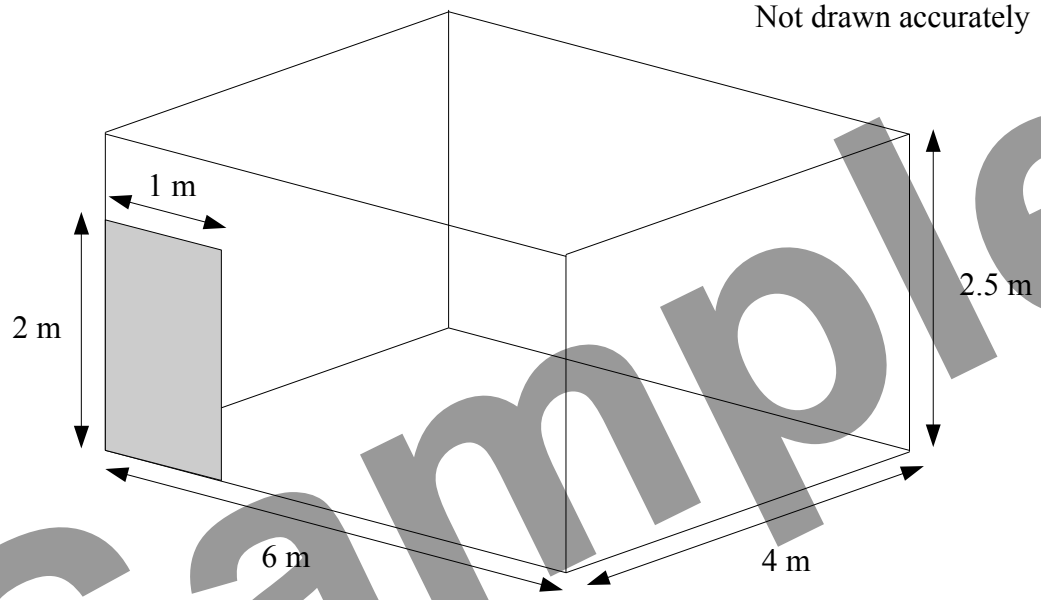
x is an integer.

Write down all the possible values of x.

Answer …… *(2 marks)*

16

Not drawn accurately



The diagram shows the dimensions of Brian's dining room.
He wants wallpaper hung on all four walls except for the door which is shaded.

Work out the total area that he wants covered with wallpaper.

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……

Answer …… m^2 *(3 marks)*

17 Adrian is a waiter.

At one of his tables the bill is for £72.
The customer at this table gives Adrian a tip of 10% of the bill.

At another of his tables the bill is for £60.
The customer at this table gives Adrian a tip of 15% of the bill.

Work out how much more Adrian gets as a tip from the second table than from the first table.

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Answer £ …… *(4 marks)*

18 Expand and simplify $(x + 3)(x + 5)$

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Answer …… *(2 marks)*

END OF QUESTIONS

