

4 (a) Write down all the factors of 24.

..... [2]

(b) Write down the reciprocal of  $\frac{3}{7}$ .

..... [1]

17 (a) Write down a prime number between 20 and 30.

..... [1]

(b) Simplify  $(\sqrt{9})^2$ .

..... [1]

18 Work out  $\frac{11}{18} - \frac{2}{9}$ .

Give your answer as a fraction in its simplest form.

..... [2]

19 By writing each number in the calculation correct to 1 significant figure, find an estimate for the value of

$$\frac{5.3 \times 19.5}{2.49}.$$

..... [2]

20 Some students take a test.  
75 of the students pass the test.  
This is  $\frac{3}{5}$  of the students who take the test.  
  
Work out how many students take the test.

..... [2]

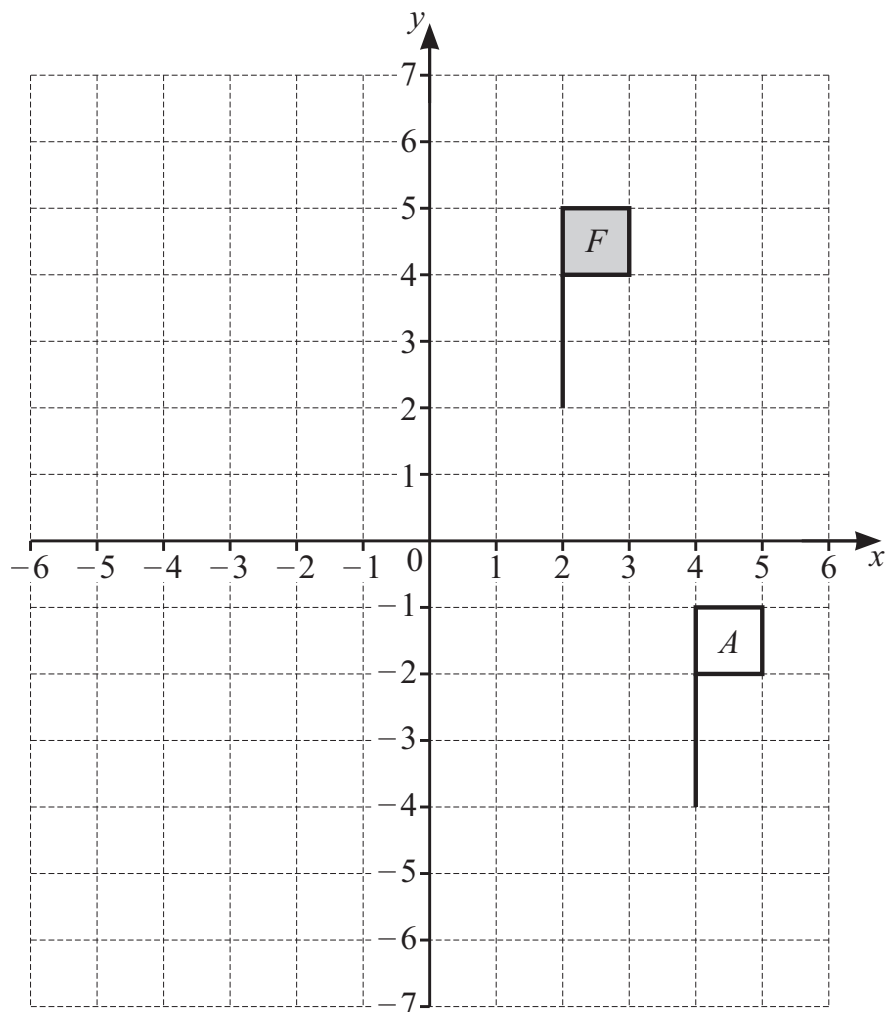
3 (a) Write 17 469 correct to the nearest ten.

..... [1]

(b) Write 5.073 correct to 1 decimal place.

..... [1]

19 The grid shows two flags,  $F$  and  $A$ .



(a) On the grid, draw the image of flag  $F$  after a reflection in the line  $x = -1$ . [2]

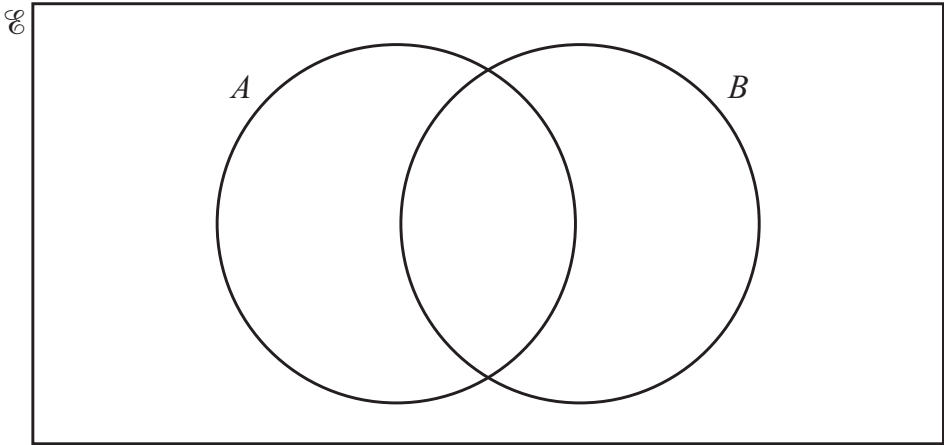
(b) On the grid, draw the image of flag  $F$  after a rotation of  $180^\circ$  about  $(0, 0)$ . [2]

(c) Describe fully the **single** transformation that maps flag  $F$  onto flag  $A$ .

.....

..... [2]

20  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$   
 $A = \{1, 3, 5, 7, 9\}$   
 $B = \{1, 3, 6, 10\}$



(a) Use this information to complete the Venn diagram. [2]

(b) List the elements of  $A \cap B$ .

..... [1]

(c) Find  $n(B')$ .

..... [1]

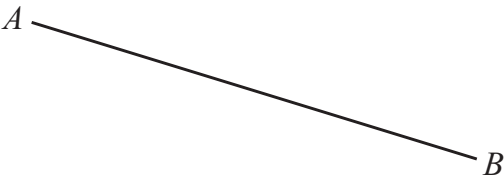
21 Simplify.

$$\frac{18x^8}{9x^2}$$

..... [2]

22 Work out the size of one interior angle of a regular hexagon.

1



- (a)

Measure the length of line  $AB$  in centimetres.

..... cm [1]
- (b)

Draw a line that is parallel to line  $AB$ .

[1]

4 Ben records the favourite sport of each of 20 students.

Football Cricket Hockey Rugby Football Tennis Rugby Football Football Rugby  
Tennis Football Rugby Football Cricket Football Rugby Football Cricket Cricket

Complete the frequency table.  
You may use the tally column to help you.

| Sport    | Tally | Frequency |
|----------|-------|-----------|
| Cricket  |       |           |
| Football |       |           |
| Hockey   |       |           |
| Rugby    |       |           |
| Tennis   |       |           |

[2]

8 These are the masses, in kg, of each of 11 bags.

|    |    |   |    |    |    |   |    |    |   |    |
|----|----|---|----|----|----|---|----|----|---|----|
| 23 | 16 | 8 | 10 | 27 | 19 | 4 | 17 | 13 | 4 | 14 |
|----|----|---|----|----|----|---|----|----|---|----|

(a) Complete the stem-and-leaf diagram to show this information.

|   |  |
|---|--|
| 0 |  |
| 1 |  |
| 2 |  |

Key: 2 | 7 represents 27 kg [2]

(b) Find the median.

..... kg [1]

12

(a) Simplify.

$3y - 4y + 2y$

..... [1]

(b) Solve.

(i)  $x + 5 = 19$

$x =$  ..... [1]

(ii)  $6x - 5 = 7$

$x =$  ..... [2]

17 (a)  $k^x \times k^5 = k^{20}$

Find the value of  $x$ .

$x =$  ..... [1]

(b) Expand and simplify.

$(x + 5)(x - 4)$

..... [2]

(c) Factorise.

$21r^3 - 7r$

..... [2]

18 The diameter of a circle is 16 cm.

Find the area of the circle.  
Leave your answer in terms of  $\pi$ .

..... cm<sup>2</sup> [2]

19 Find the number of sides of a regular polygon with interior angle 160°.

..... [2]

24 (a) The scale on a map is 1 cm represents 12 km.

Write this in the ratio 1 :  $n$  .

1 : ..... [1]

(b) The bearing of  $B$  from  $A$  is  $070^\circ$ .

Find the bearing of  $A$  from  $B$ .

..... [2]

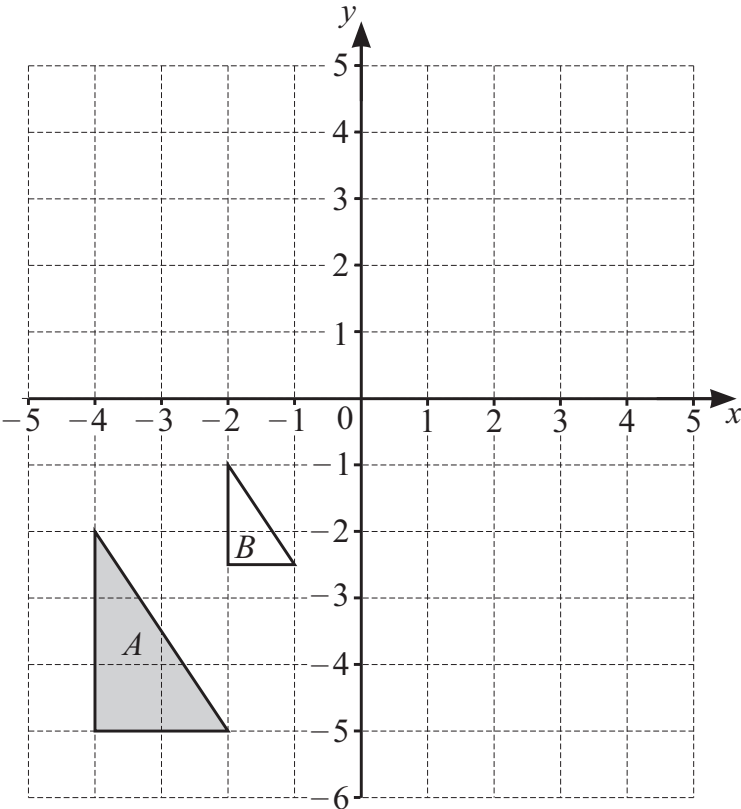
25 Work out.

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

Give your answer as a mixed number in its simplest form.

..... [3]

15 Shapes *A* and *B* are shown on the grid.



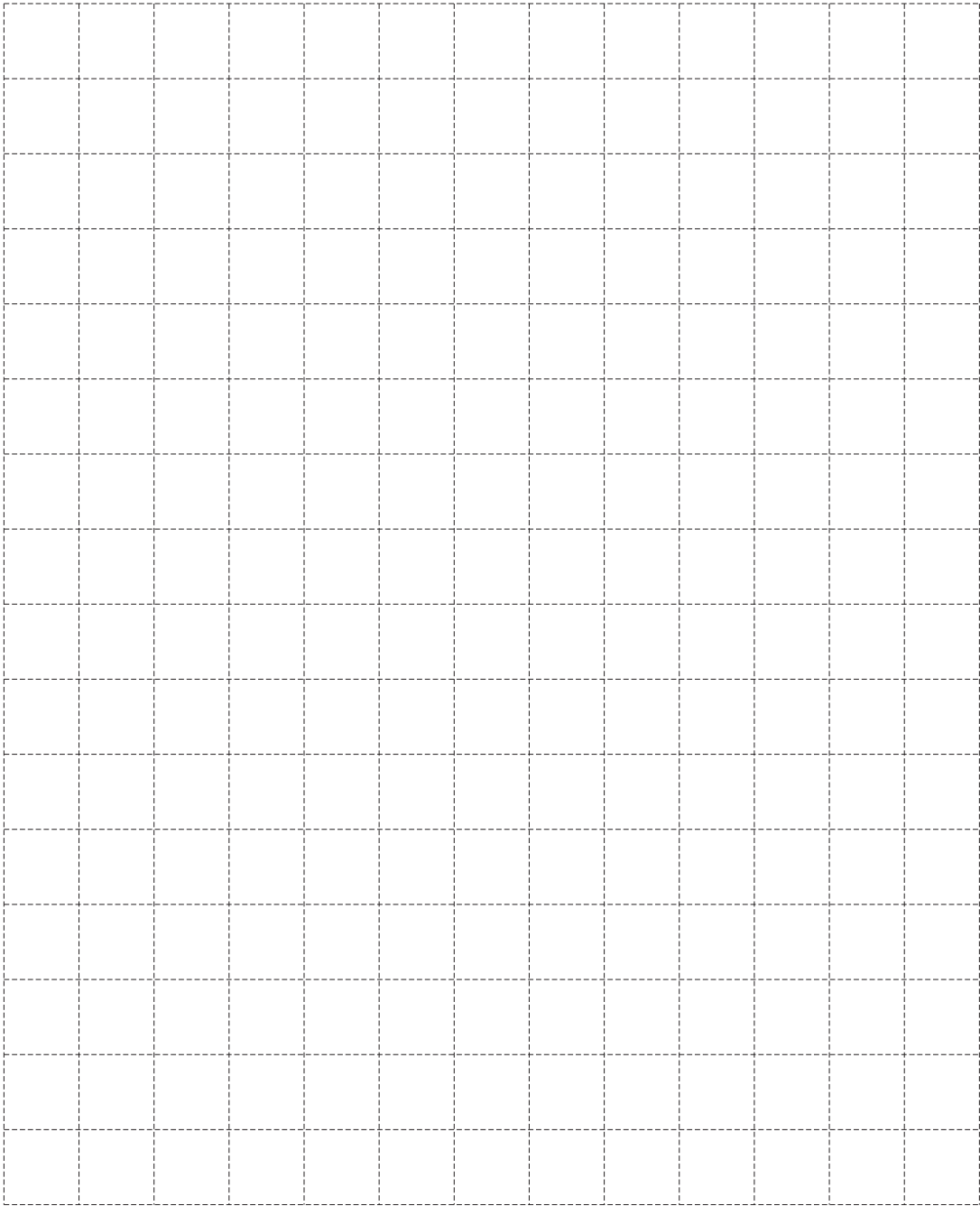
(a) Describe fully the **single** transformation that maps shape *A* onto shape *B*.

.....  
..... [3]

(b) On the grid, draw the image of shape *A* after a translation by the vector  $\begin{pmatrix} 6 \\ 7 \end{pmatrix}$ . [2]

10 A cuboid has length 5 cm, width 2 cm and height 3 cm.

(a) Draw a net of the cuboid on the 1 cm<sup>2</sup> grid.

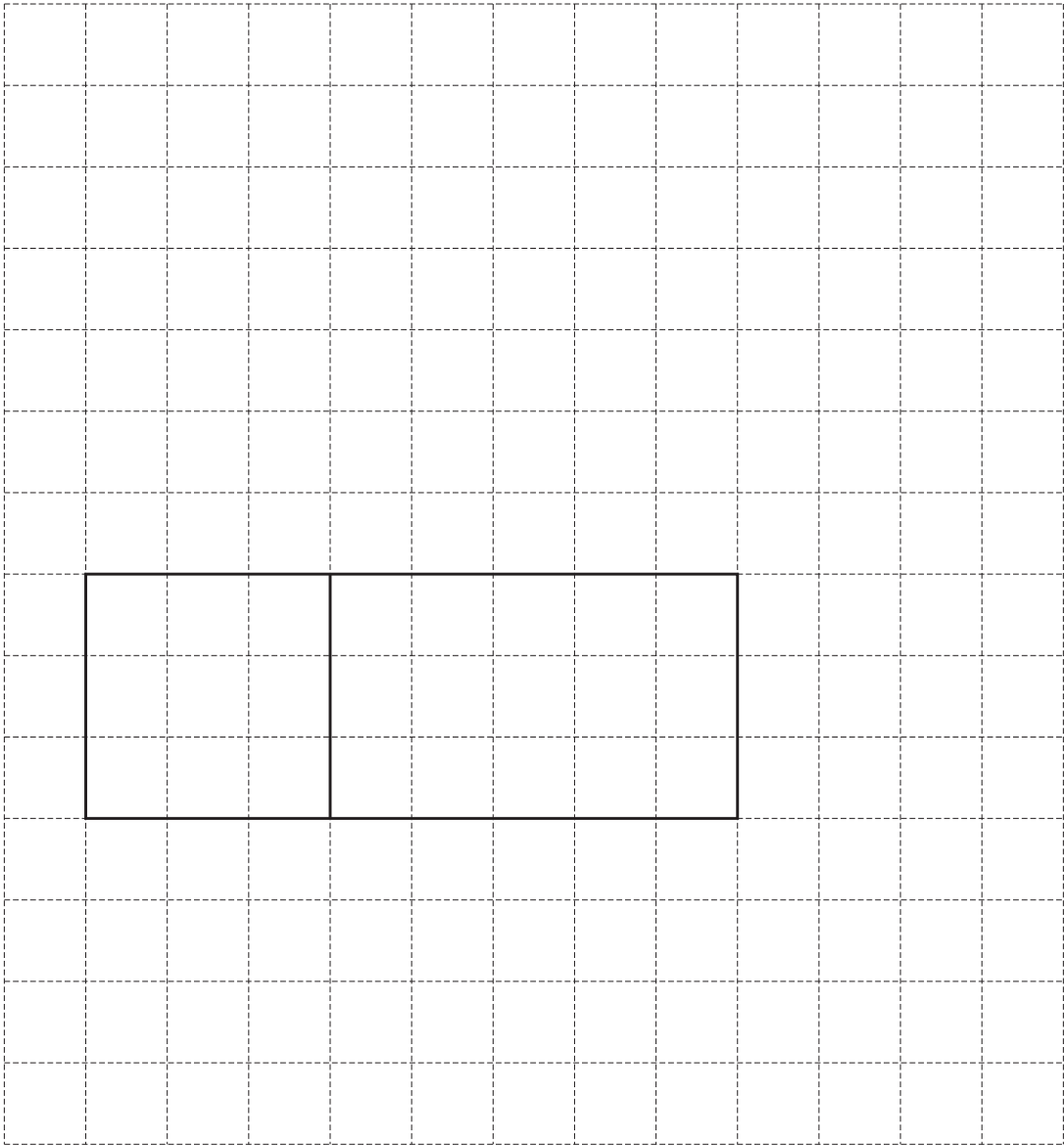


[3]

(b) Work out the volume of the cuboid.  
Give the units of your answer.

..... [2]

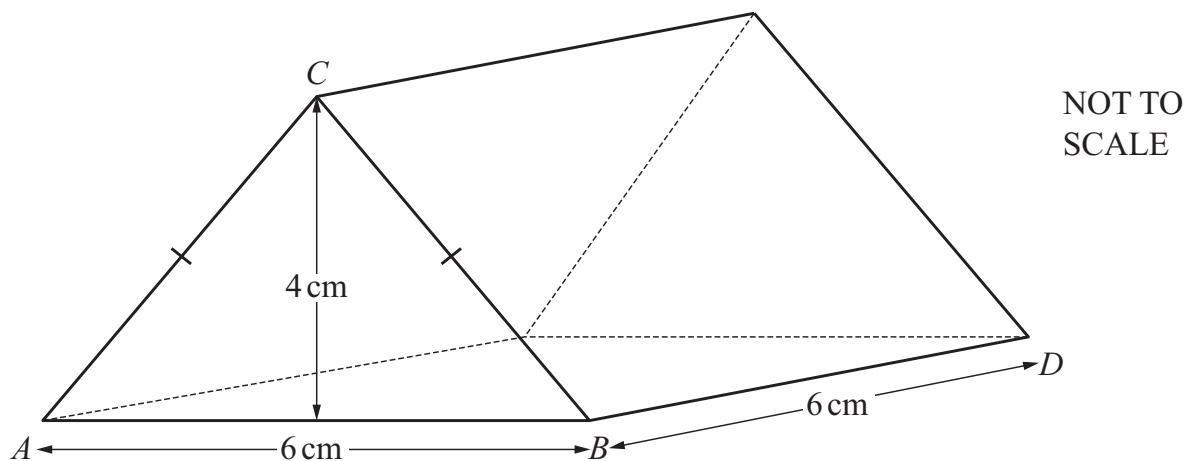
8 The diagram shows two faces of a net of a cuboid on a  $1\text{ cm}^2$  grid.



- (a) Complete the statement.  
The dimensions of the cuboid are ..... cm by ..... cm by ..... cm. [1]
- (b) On the grid, complete a net of the cuboid. [3]
- (c) Work out the volume of the cuboid.

.....  $\text{cm}^3$  [2]

14



The diagram shows a triangular prism.  
 $ABC$  is an isosceles triangle with  $AC = BC$ .  
The perpendicular height of triangle  $ABC$  is 4 cm.  
 $AB = 6$  cm and  $BD = 6$  cm.

(a) Complete this statement.

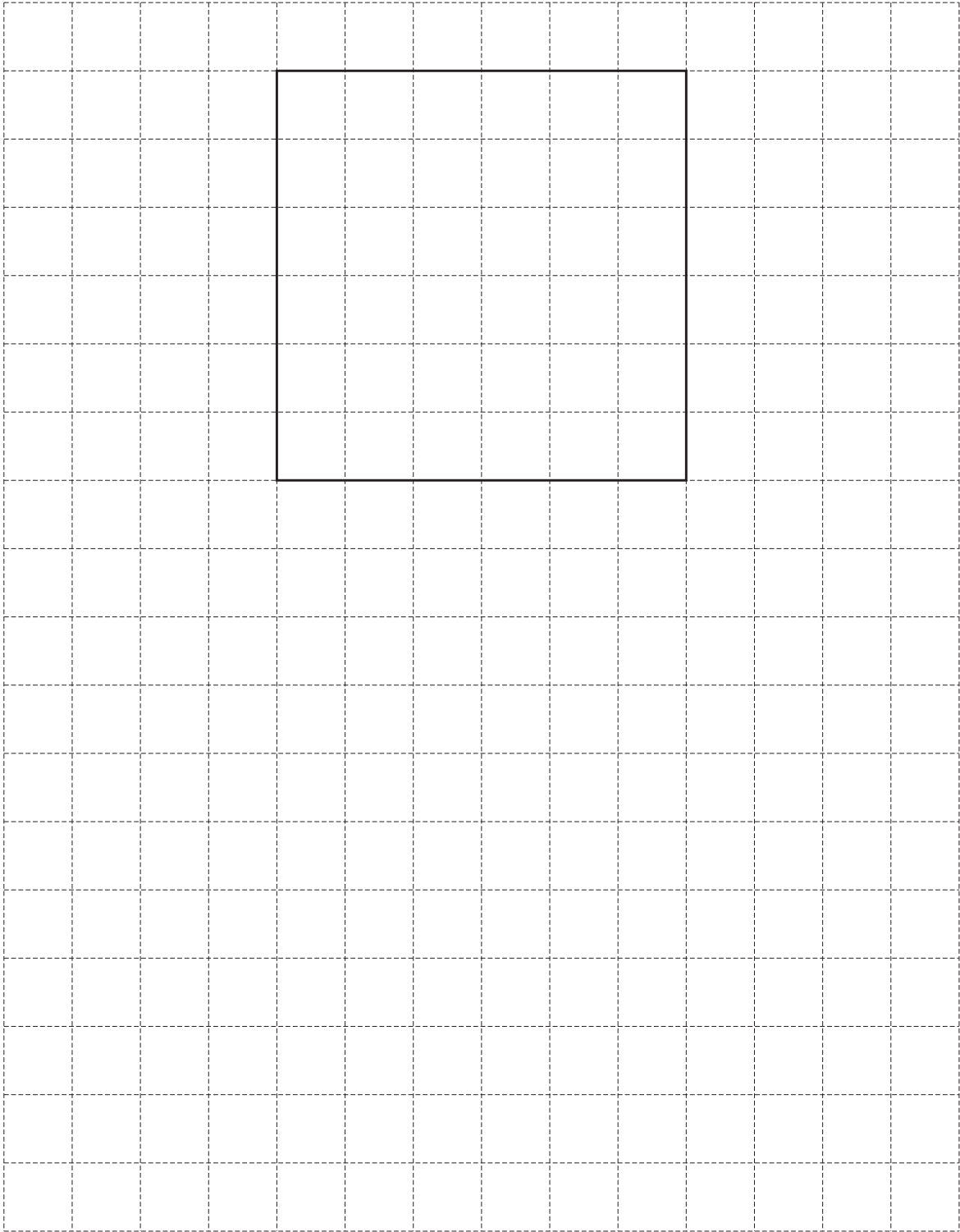
The prism has ..... faces and ..... edges.

[2]

(b) Show that the length of  $BC$  is 5 cm.

[2]

(c) Complete the net of the prism on the 1 cm<sup>2</sup> grid.  
The base has been drawn for you.



[3]