

8300

## GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

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Geometry

Transformations – Enlargement by a positive scale factor

v1.0

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Name \_\_\_\_\_

### Materials

For this paper you must have:

- Mathematical instruments

### Information

- The marks for questions are shown in brackets

### Advice

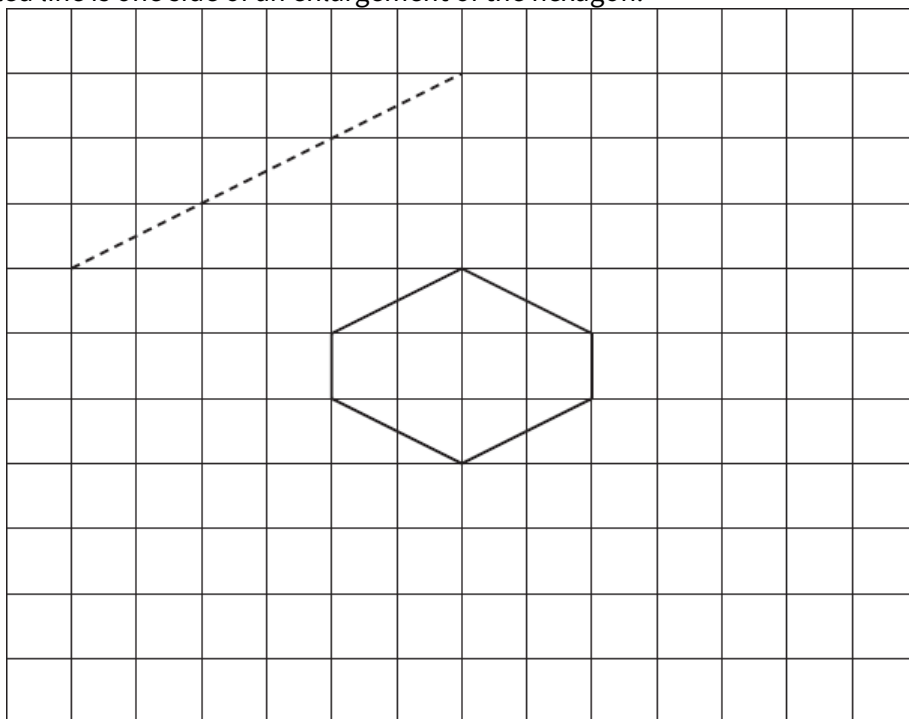
- In all calculations, show clearly how you work out your answer

For questions 1 to 4, you must **NOT** use a calculator.



**Q1.**

The dotted line is one side of an enlargement of the hexagon.



(a) Complete the enlarged hexagon.

(2)

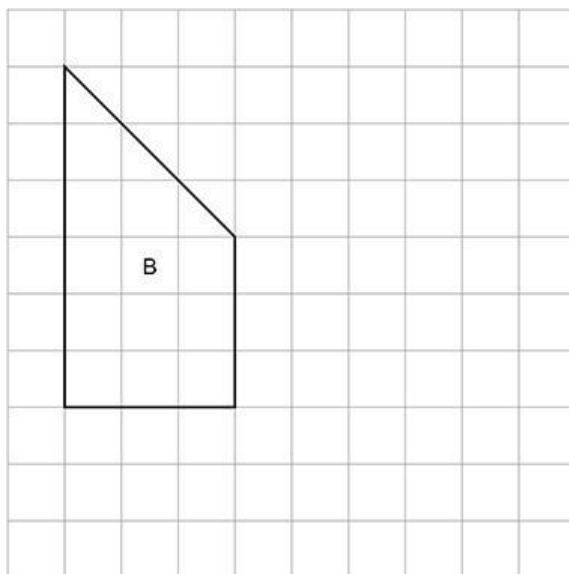
(b) What is the scale factor of the enlargement?

(1)

**(Total 3 marks)**

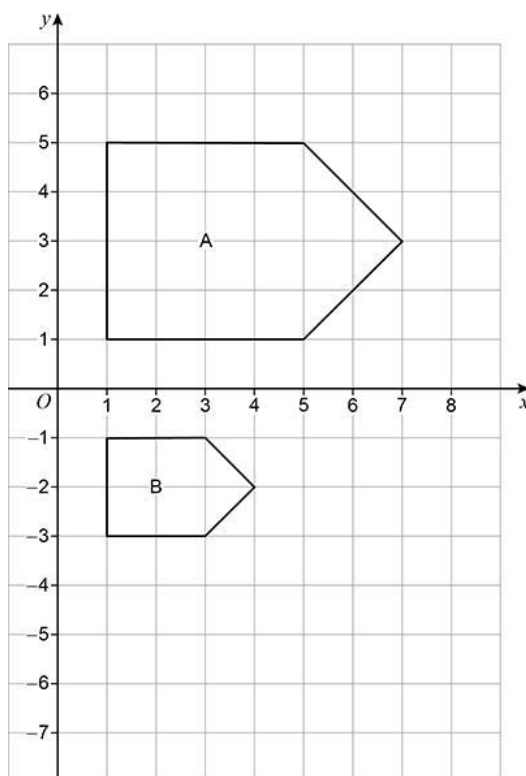
**Q2.**

On the grid, **enlarge** shape B by scale factor  $\frac{1}{3}$



**(Total 2 marks)**

**Q3.**

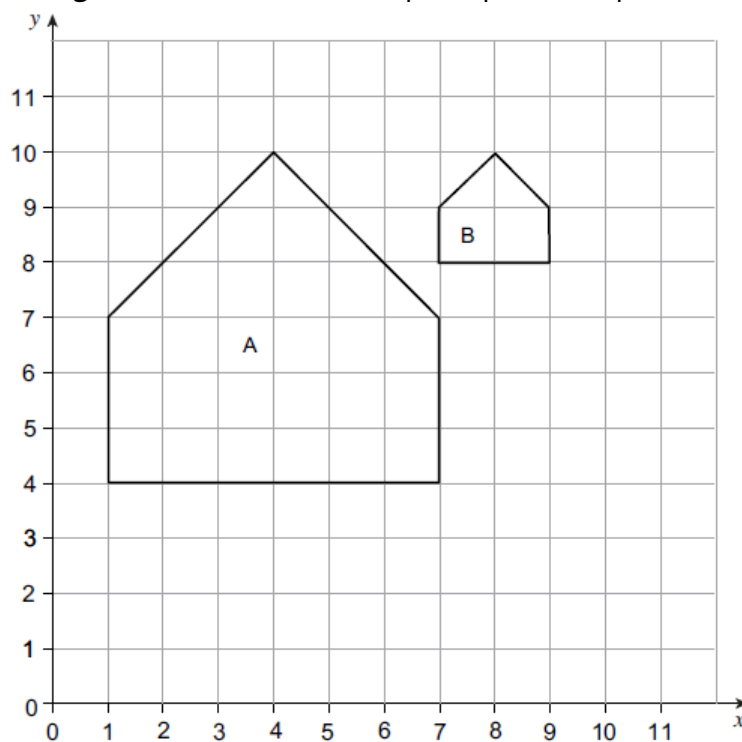


Describe fully the **single** transformation that maps shape A to shape B.

**(Total 3 marks)**

**Q4.**

Describe fully the **single** transformation that maps shape A to shape B.



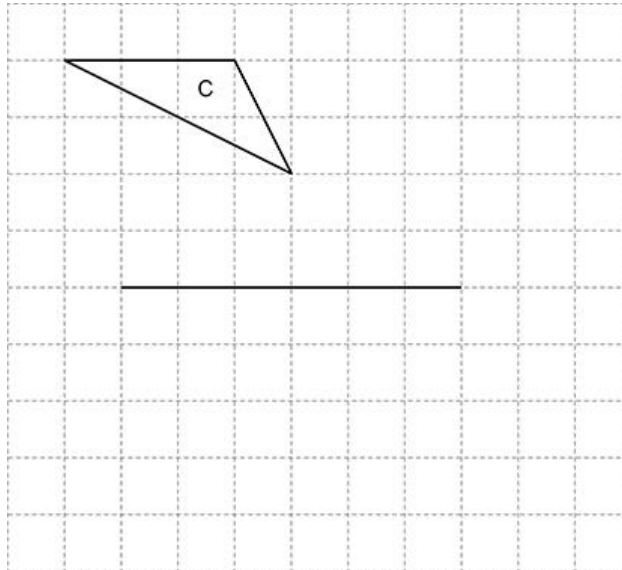
**(Total 3 marks)**

For questions 5 to 16, you may use a calculator.



**Q5.**

On this grid, shape C is shown.  
One side of shape D is also shown.

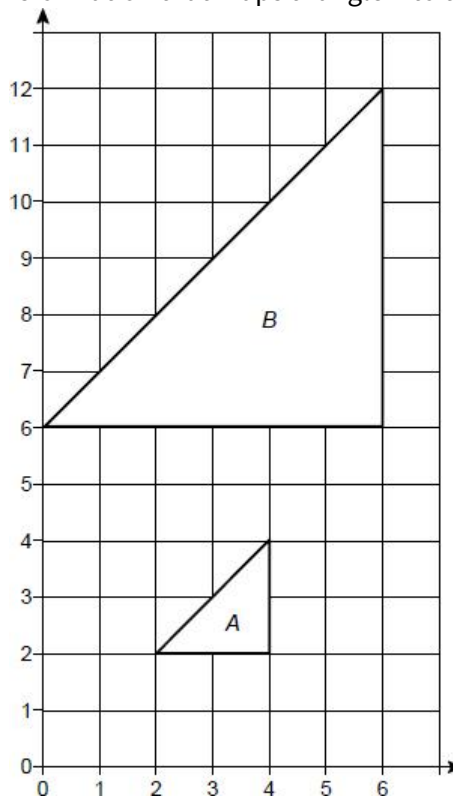


Complete shape D so that it is an enlargement of shape C with scale factor 2

**(Total 1 mark)**

**Q6.**

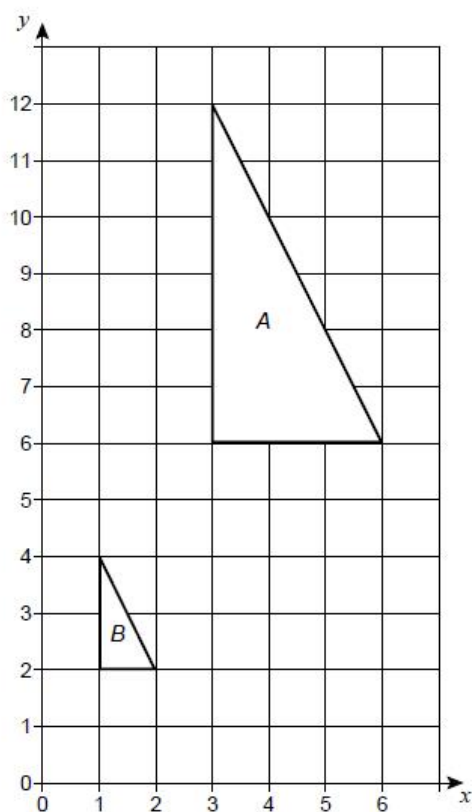
Describe fully the single transformation that maps triangle A to triangle B.



**(Total 3 marks)**

**Q7.**

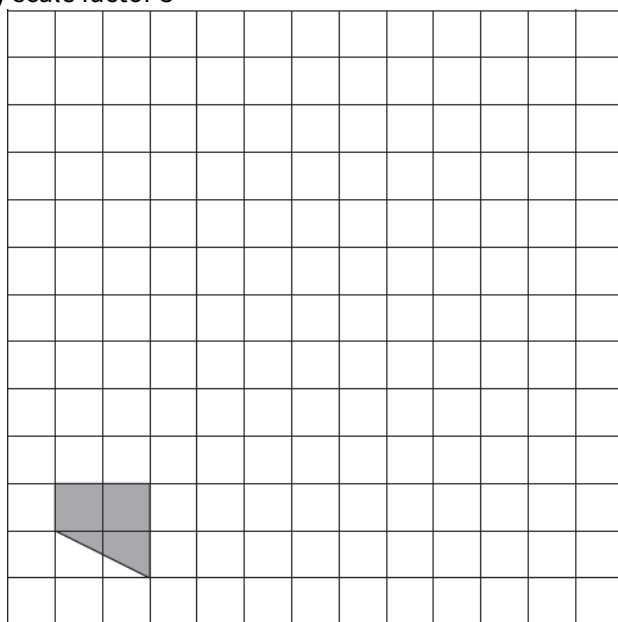
Describe fully the **single** transformation that maps triangle *A* to triangle *B*.



**(Total 3 marks)**

**Q8.**

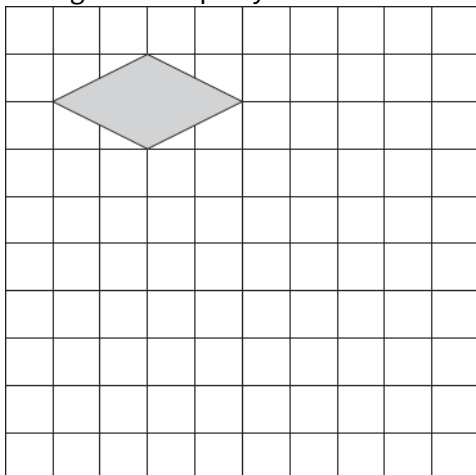
Enlarge the shape by scale factor 3



**(Total 2 marks)**

**Q9.**

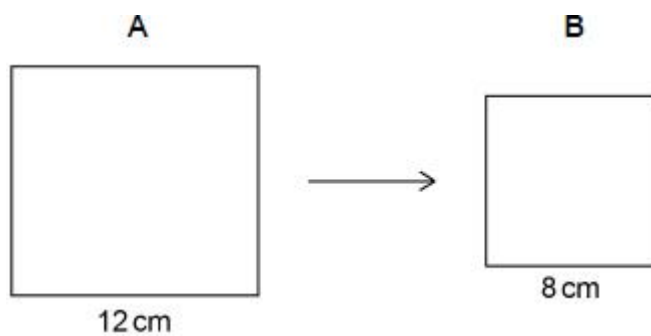
Enlarge this shape by scale factor 2.



**(Total 2 marks)**

**Q10.**

Square A is enlarged to square B.

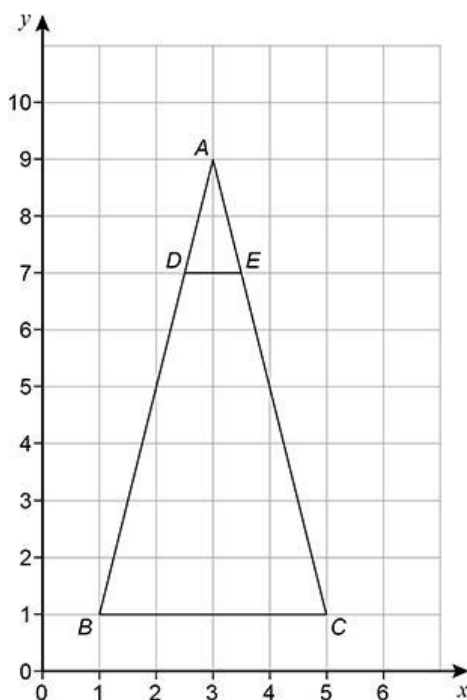


Not drawn  
accurately

Write down the scale factor of the enlargement as a fraction.

**(Total 1 mark)**

**Q11.**

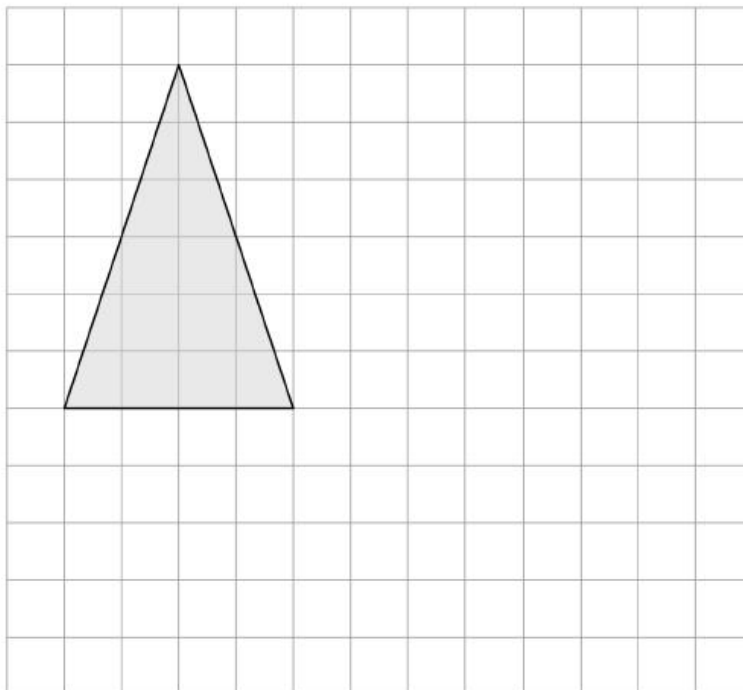


Describe fully the **single** transformation that maps triangle ABC to triangle ADE.

**(Total 3 marks)**

**Q12.**

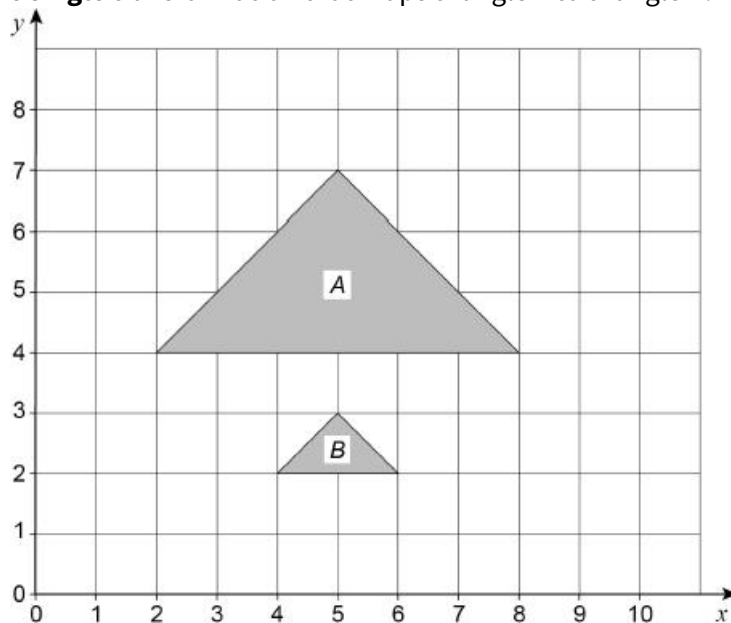
On the grid, draw an enlargement of the triangle with scale factor  $\frac{1}{2}$



**(Total 2 marks)**

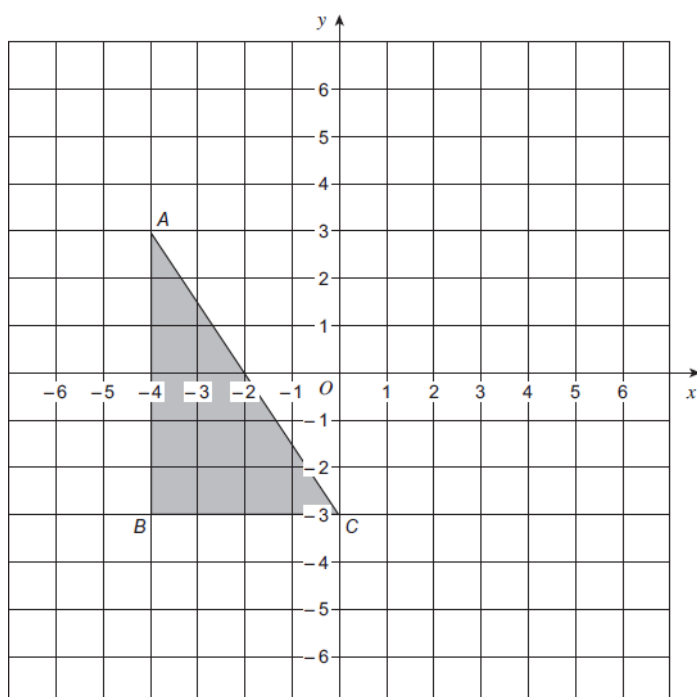
**Q13.**

Describe fully the **single** transformation that maps triangle A to triangle B.



**(Total 3 marks)**

**Q14.**

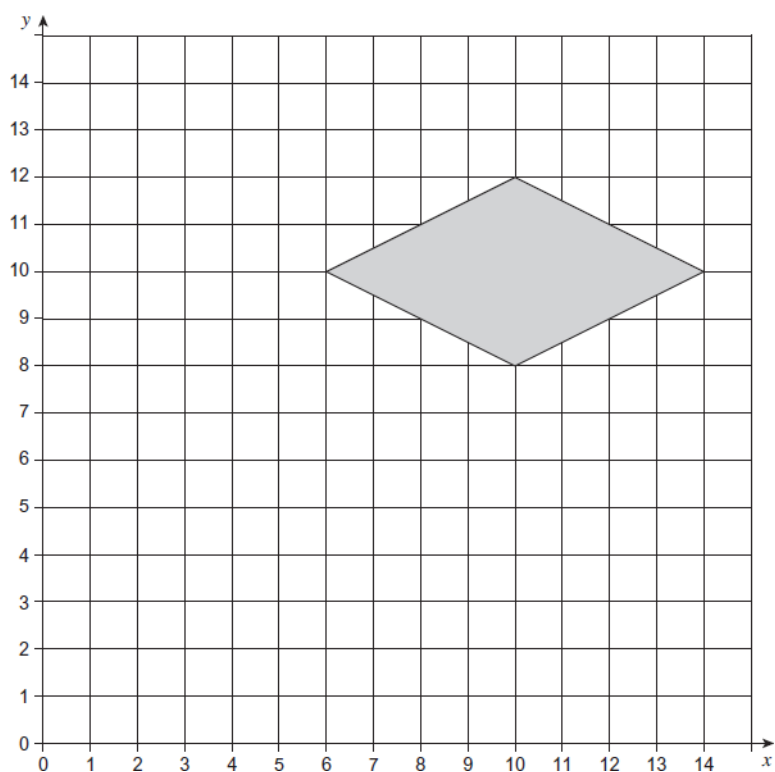


Enlarge triangle ABC by scale factor  $\frac{1}{2}$ , centre (4, 1).

**(Total 2 marks)**

**Q15.**

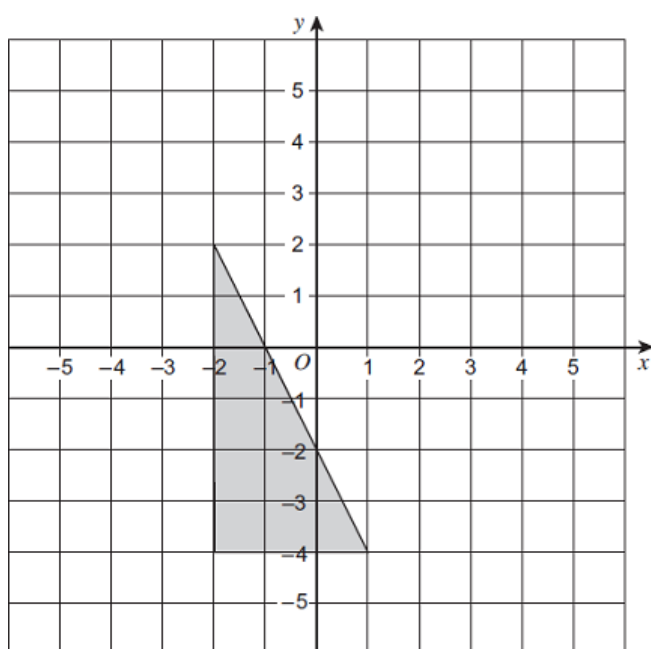
Enlarge the shape by scale factor  $\frac{1}{2}$  with centre of enlargement (0, 2).



**(Total 2 marks)**

**Q16.**

Enlarge the triangle by scale factor  $\frac{1}{3}$  with centre (-5, -4).



**(Total 2 marks)**

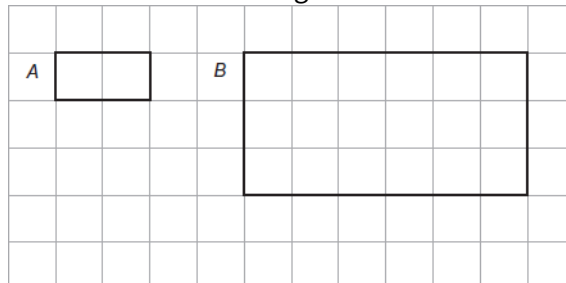
**Transformations – Enlargement by a positive scale factor – Cross topic questions.**

For question 17, you must **NOT** use a calculator.



**Q17.**

Rectangles *A* and *B* are drawn on a centimetre grid.



- (a) *B* is an enlargement of *A*.  
What is the scale factor of the enlargement?
- (b) How many times larger is the area of *B* than the area of *A*?

**(1)**

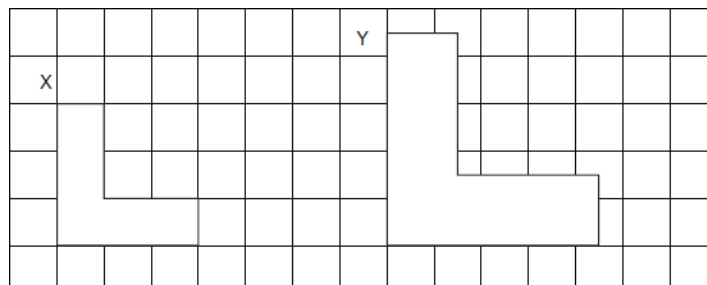
**(2)**

**(Total 3 marks)**

**For the rest of the questions, you may use a calculator.**



**Q18.**



- (a) Shape *Y* is an enlargement of shape *X*.  
What is the scale factor of the enlargement?
- (b) Shape *X* has a perimeter of 12 cm.  
Work out the perimeter of shape *Y*.

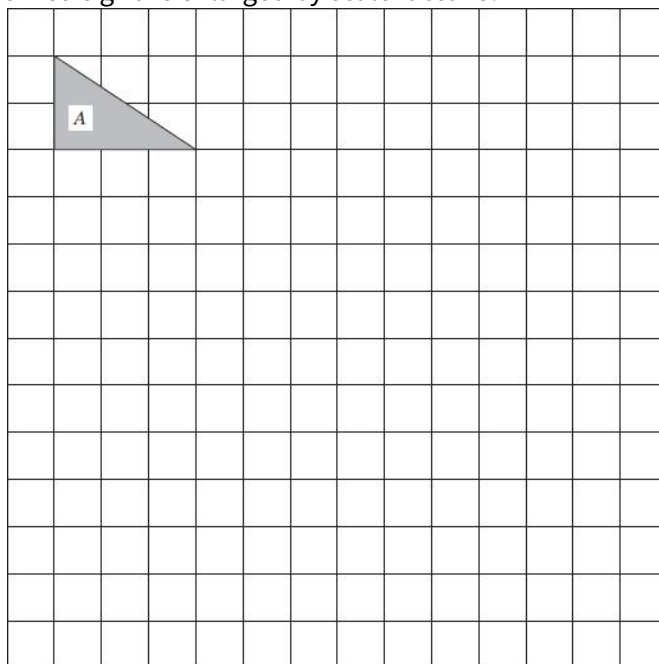
**(1)**

**(1)**

**(Total 2 marks)**

**Q19.**

Shape *A* on the centimetre grid is enlarged by scale factor 3.

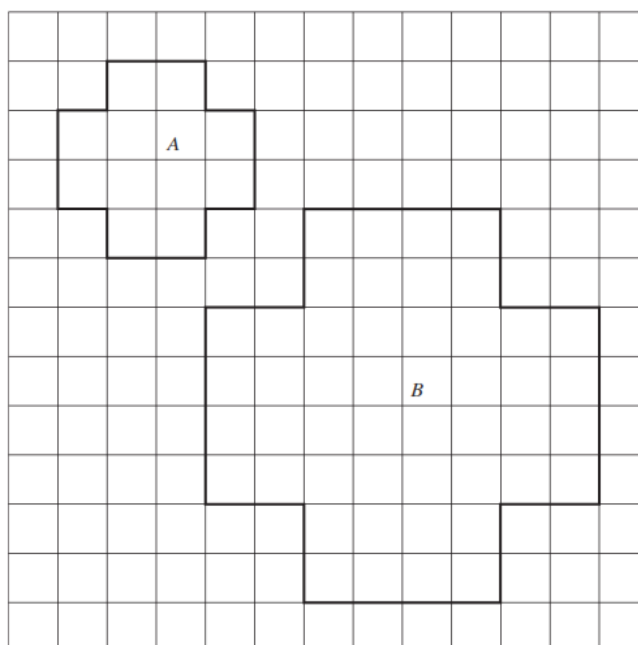


Work out the area of the enlargement.

**(Total 3 marks)**

**Q20.**

Shape *A* and shape *B* are drawn on a centimetre grid.



- (a) Work out the area of shape *A*.  
State the units of your answer.

**(2)**

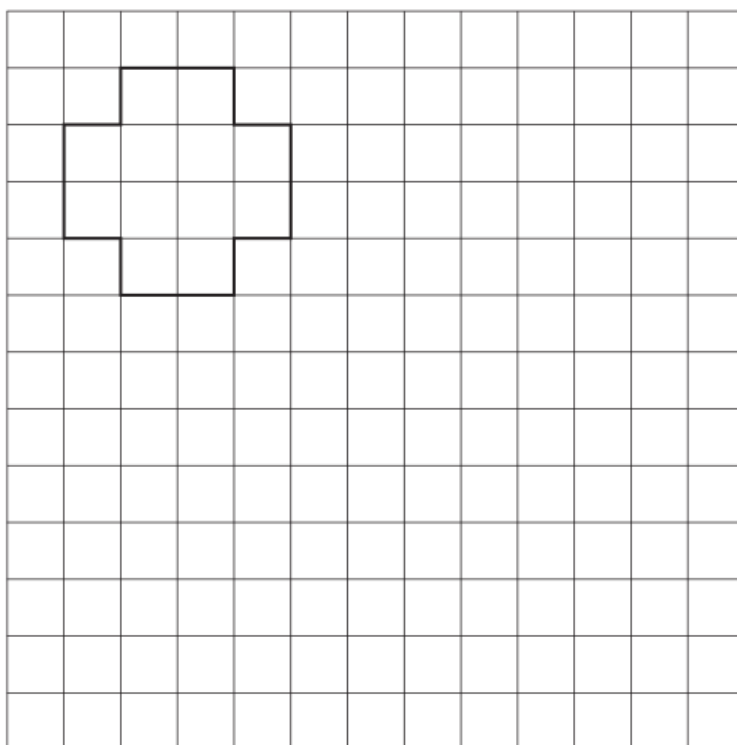
- (b) Shape *B* is an enlargement of shape *A*.  
Write down the scale factor of the enlargement.

**(1)**

**(Total 3 marks)**

**Q21.**

The diagram shows a shape on a centimetre grid.

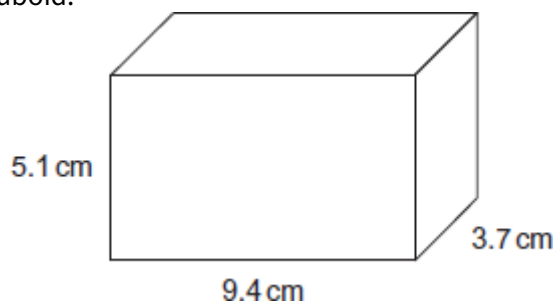


Work out the area of the shape after an enlargement of scale factor 2.  
State the units of your answer.

**(Total 3 marks)**

**Q22.**

The diagram shows a cuboid.



The cuboid is enlarged by scale factor 4.

- (a) Work out the dimensions of the enlarged cuboid.
- (b) How many times bigger is the volume of the enlarged cuboid than the volume of the original cuboid?

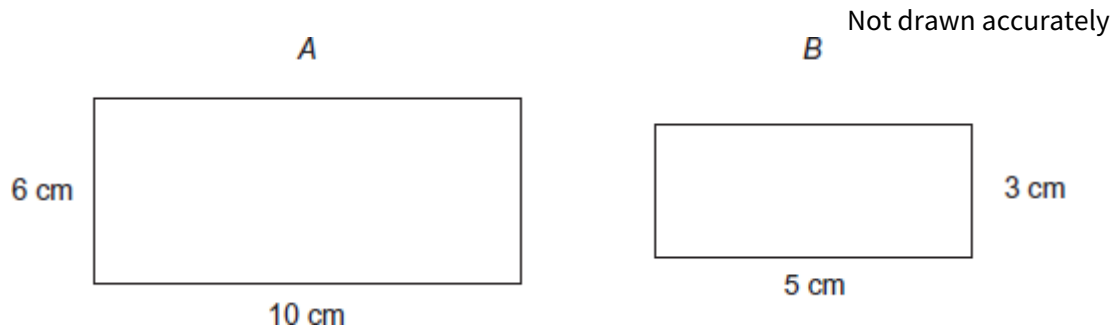
**(2)**

**(2)**

**(Total 4 marks)**

**Q23.**

Rectangle  $B$  is an enlargement of rectangle  $A$ .



- (a) Write down the scale factor of the enlargement from rectangle  $A$  to rectangle  $B$ .

**(1)**

- (b) Work out the ratio area of rectangle  $A$  : area of rectangle  $B$   
Give your answer in its simplest form.

**(3)**

**(Total 4 marks)**