Surname

Other Names

Candidate Signature

In the style of

AQA

General Certificate of Secondary Education
Foundation Tier

Mathematics   **43601F**

Past Paper Questions by Topic

Transformations

F

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.

Time allowed
- 1 hour 15 minutes

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is .
- The quality of your written communication is specifically assessed in questions indicated with an asterisk (*)
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer booklet.

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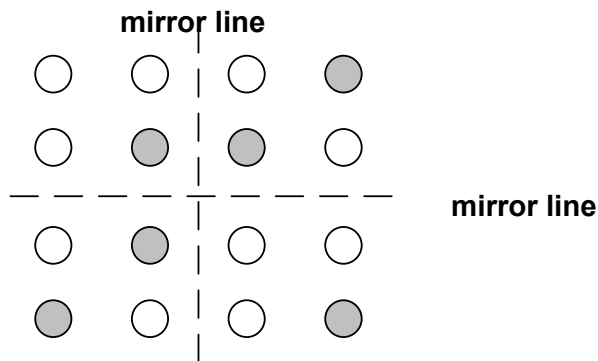- In all calculations, show clearly how you work out your answer.

1   Here are some patterns of circles.

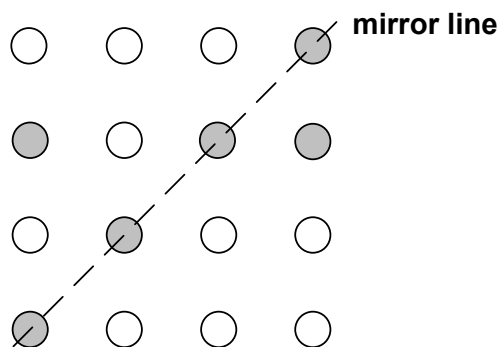**1 (a)**   Shade **four** more circles to give this pattern symmetry in the mirror line.
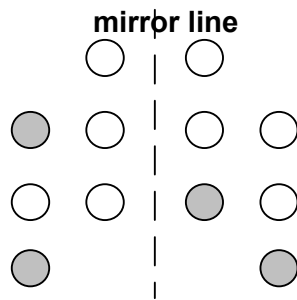
mirror line

(*2 marks*)

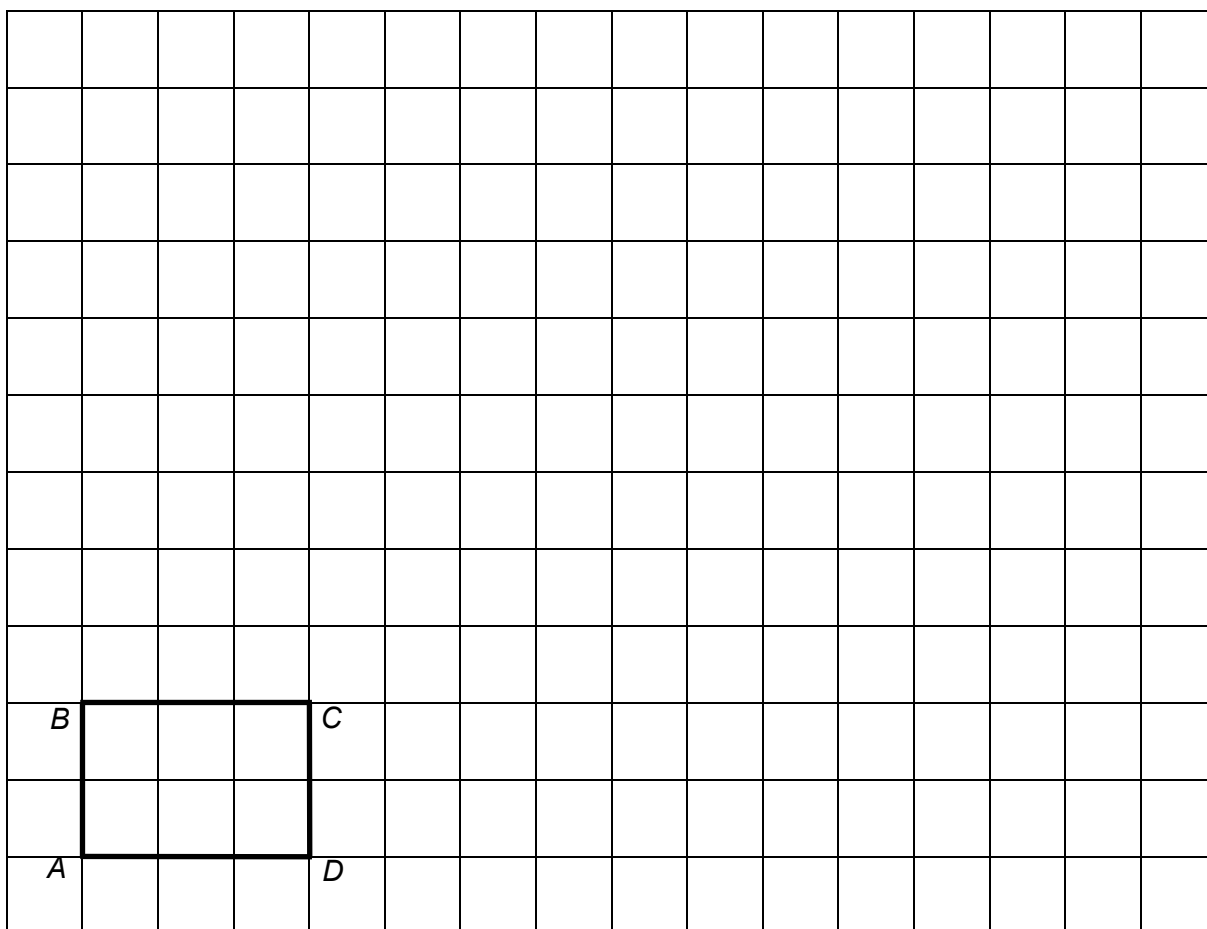**1 (b)**   Shade **two** more circles to give this pattern symmetry in both mirror lines.

mirror line

mirror line

(*2 marks*)

1 (c)   Shade **two** more circles to give this pattern symmetry in the mirror line.

mirror line

(*2 marks*)

2 The shape *ABCD* is drawn on a grid.

2 (a) Enlarge *ABCD* by scale factor 3.

(*2 marks*)

2 (b) How many times bigger is the area of the enlarged shape than the area of *ABCD*?

....

Answer .... (*2 marks*)

3   The number 71 is shaded on the grid.
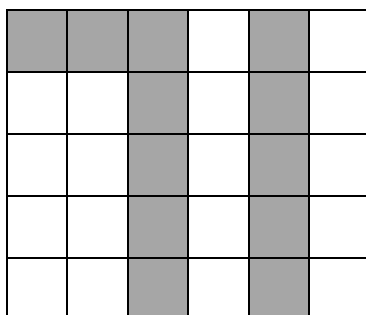
3 (a)   What fraction of the grid is shaded?

Give your answer in its simplest form.

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Answer .... (*3 marks*)

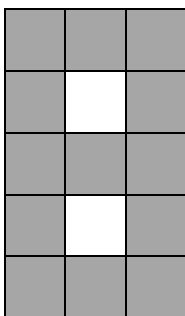**3 (b)**   The letter S is shaded on this grid.
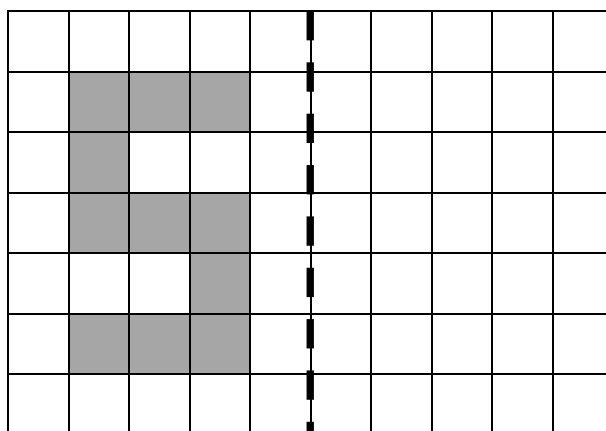
mirror line

Draw the reflection of the letter S in the mirror line.
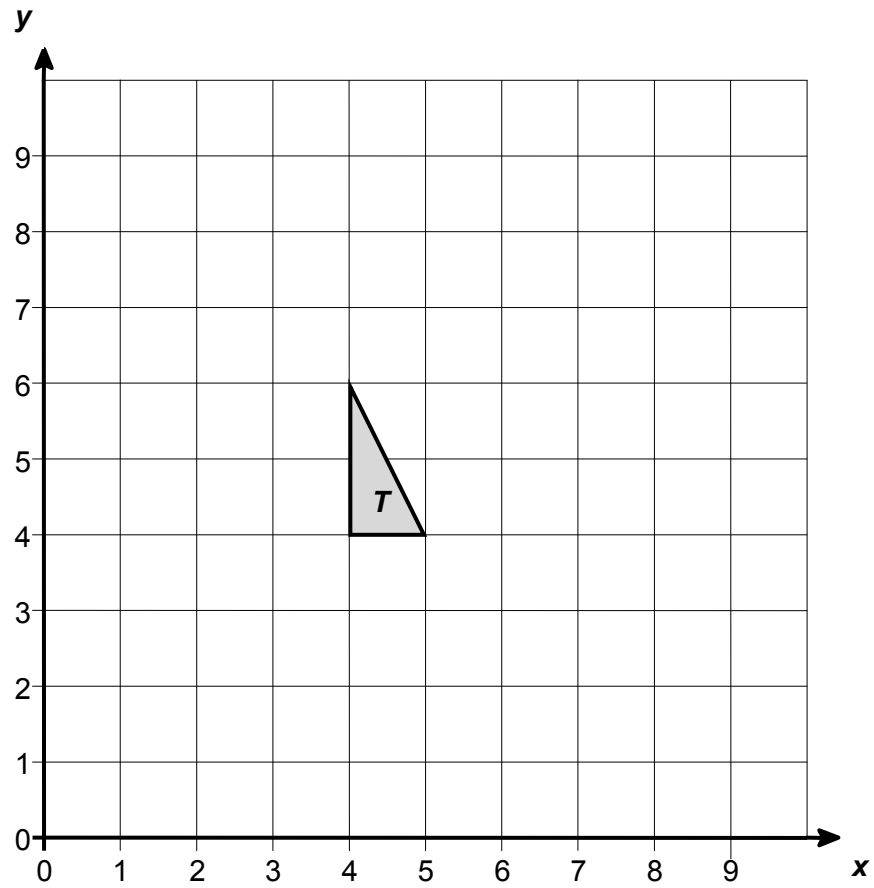
(*2 marks*)

3 (c)   The number eight is drawn.

Write down the order of rotational symmetry.

Answer .... (*1 mark*)

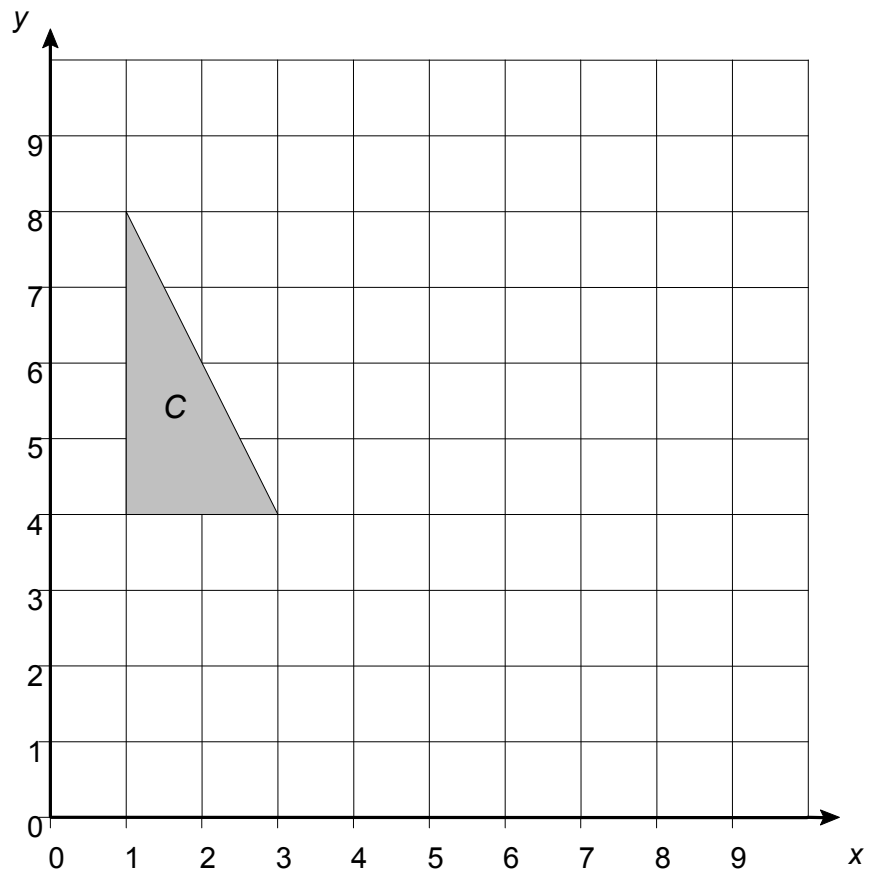**4**   Triangle *T* is shown on the grid.

Translate triangle *T* by vector $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$

(2 marks)
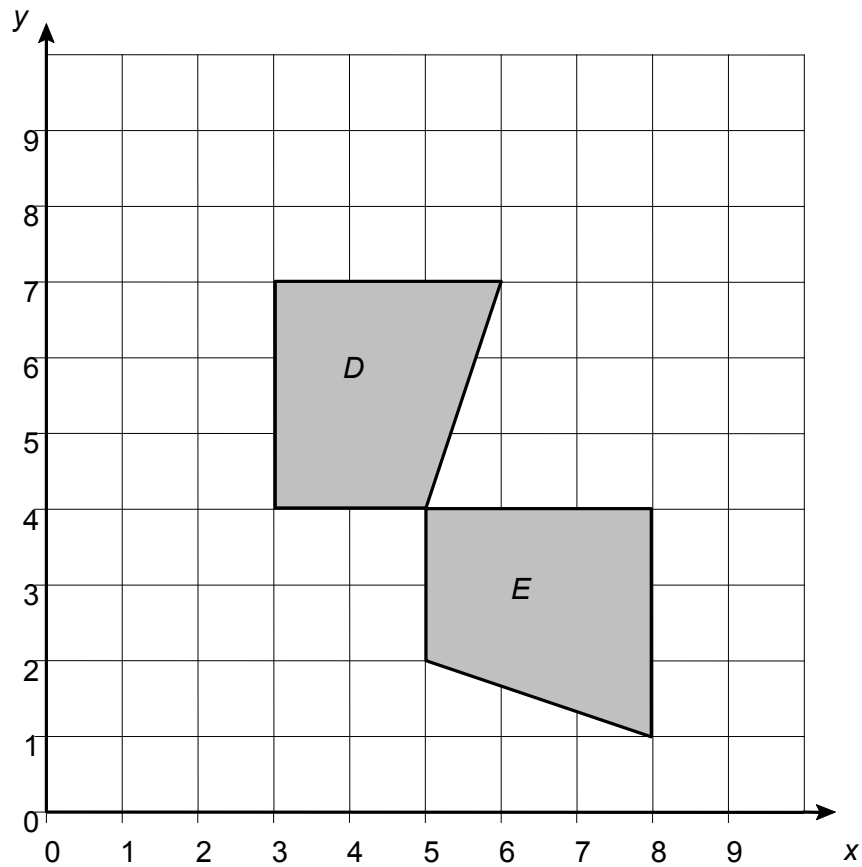
5 (a)   The diagram shows shape *C*.

Reflect shape *C* in the line *y* = 4

(2 marks)

5 (b) The diagram shows two shapes *D* and *E*.

Describe fully the **single** transformation which takes shape *D* to shape *E*.

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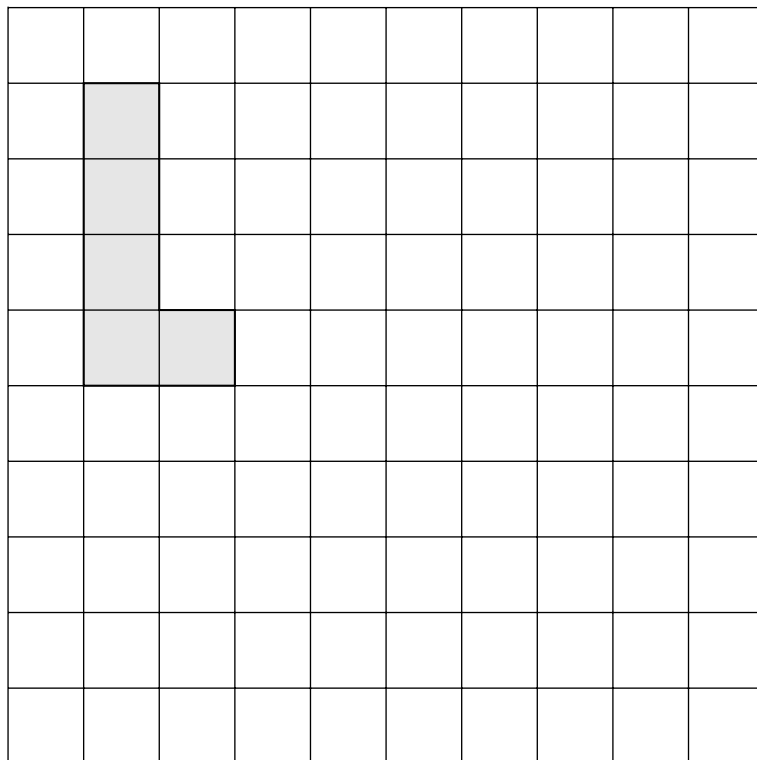
(*3 marks*)

6 (a) Shape *L* has an area of $5\,\text{cm}^2$.

Work out the area of the shape after an enlargement of scale factor 2

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....

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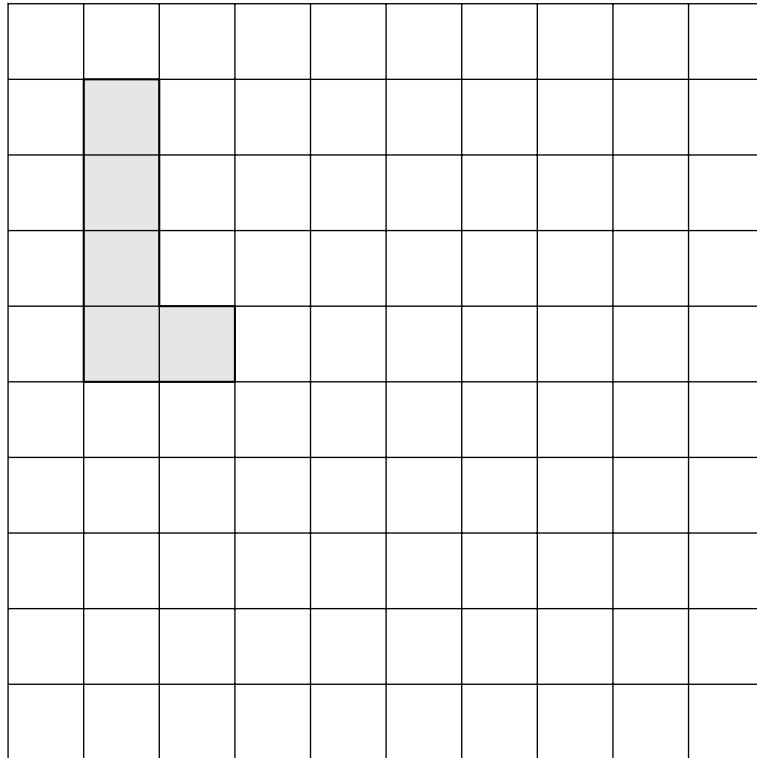Answer .... cm^2 *(2 marks)*
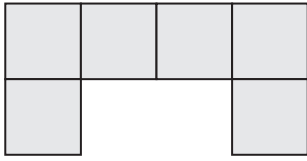
6 (b) Rotate the shape clockwise by a quarter of a turn.
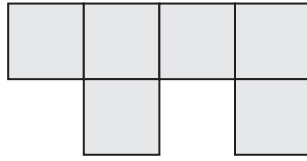Mark with a cross your centre of rotation.

(3 marks)
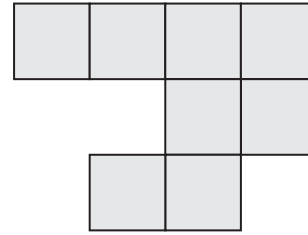
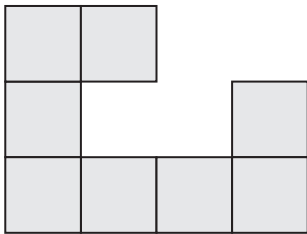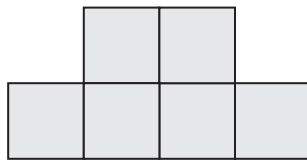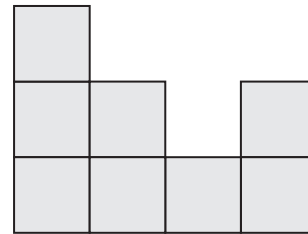**7**   Here are six shapes made from centimetre squares.

1	*2*	*3*
4	*5*	*6*

7 (a)   Which **two** shapes fit together to make a rectangle?

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

7 (b)   Which **two** shapes fit together to make a square?

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

7 (c)   Work out the area of shape *D*. State the units of your answer.

....

Answer .... *(2 marks)*

8 Triangles *R*, *S* and *T* are shown on the grid.
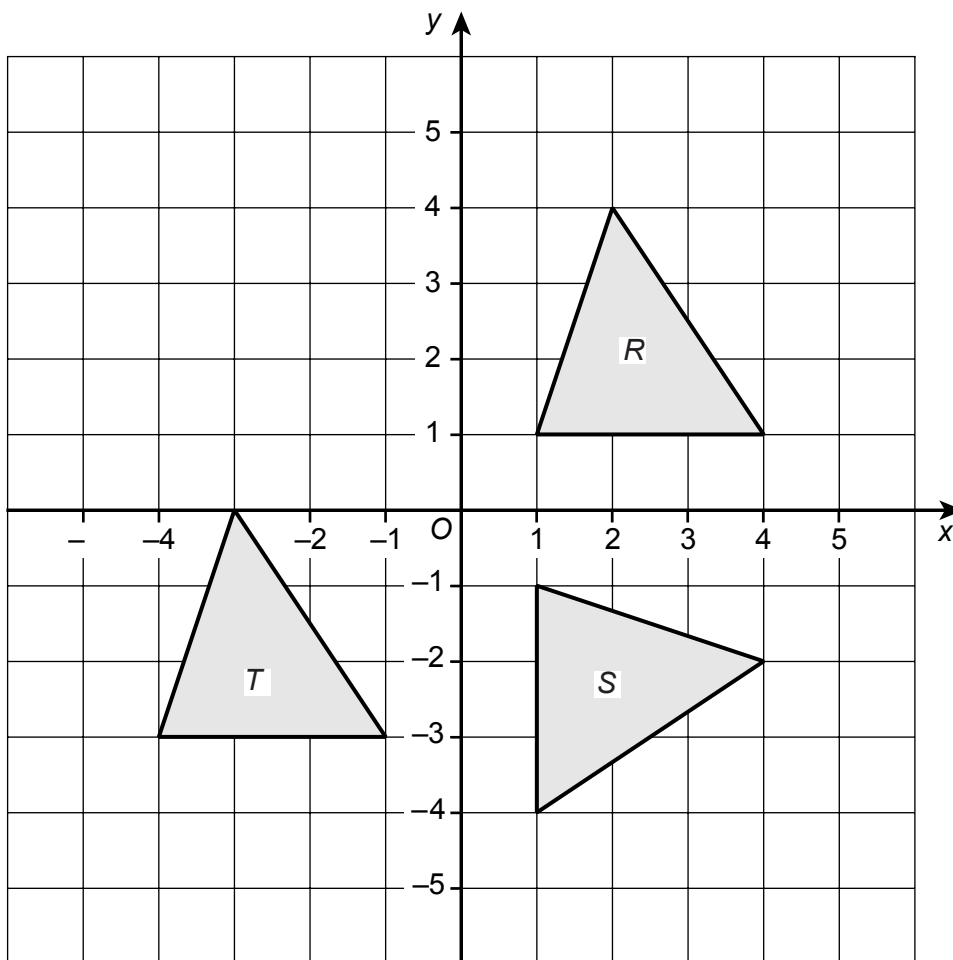
8 (a) Describe fully the **single** transformation that maps triangle *R* onto triangle *S*.
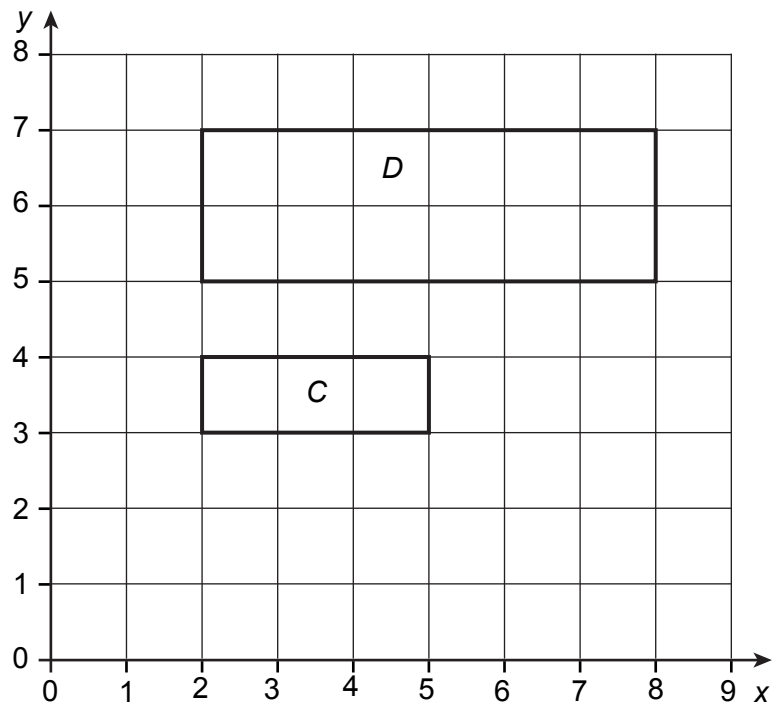
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(3 marks)

8 (b) Write down the vector which describes the translation of triangle *R* onto triangle *T*.

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

9 Rectangle *D* is an enlargement of rectangle *C*.

9 (a) Write down the scale factor of the enlargement.

Answer .... *(1 mark)*

9 (b) Write down the coordinates of the centre of the enlargement.

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

10 The diagram shows a triangle *L*, with vertices at (–4, 3), (–2, 3) and (–2, 4).
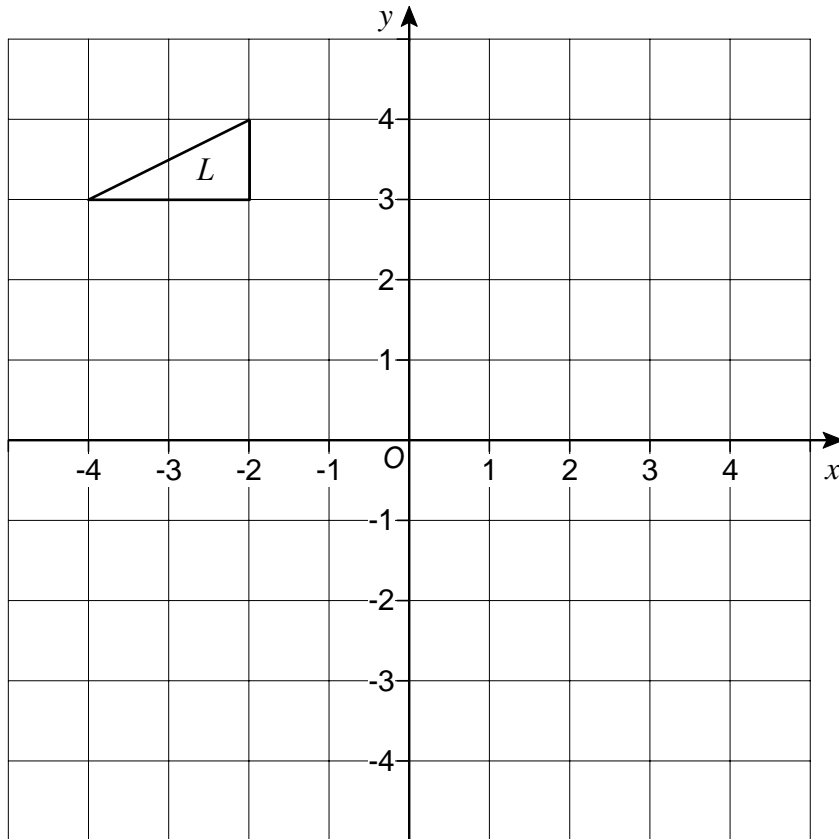
10 (a) Draw a image of triangle *L* when it is reflected in the line $y = 1$
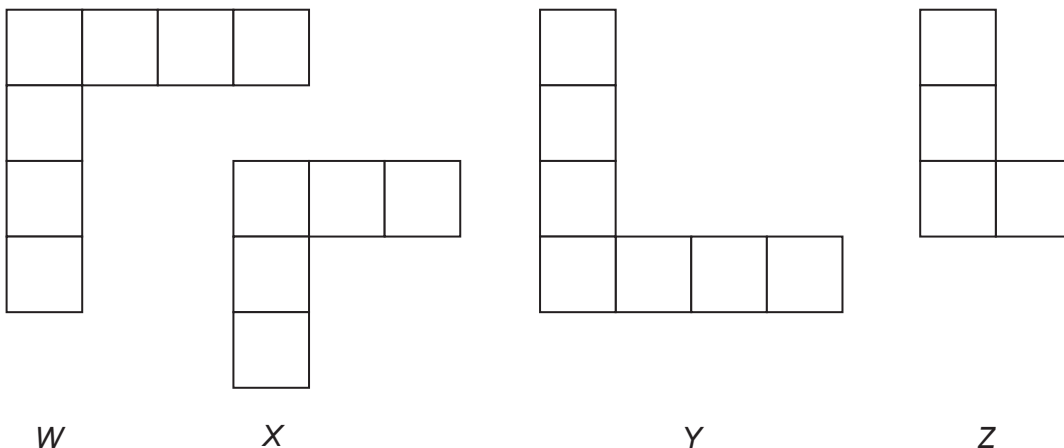
Label your image *M*.

(2 marks)

10 (b) Draw an image of triangle *L* when it is rotated 90° clockwise about the origin.

Label your image *N*.

(3 marks)

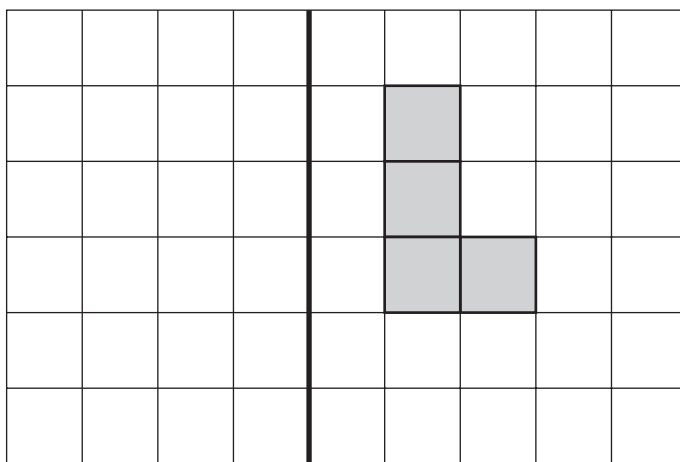**11** Shapes *W*, *X*, *Y* and *Z* are made from squares of sides 1 cm.

| | | | |
| W | X | Y | Z |

11 (a) Which **two** shapes are congruent?

Answer   Shape .... and Shape ....

(1 mark)

11 (b) Shape *L* is drawn on the grid.

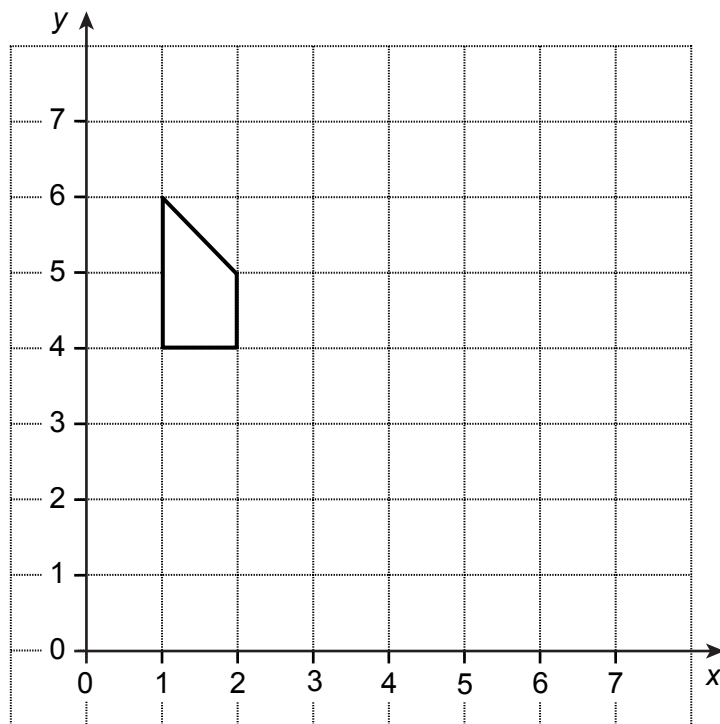Reflect shape *L* in the mirror line.

Mirror line

(2 marks)

12 Enlarge the shape in the diagram by a scale factor 3, centre (0, 6).

(2 marks)