

Name: _____

GCSE (1 – 9)

Enlargement by a Negative Scale Factor

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

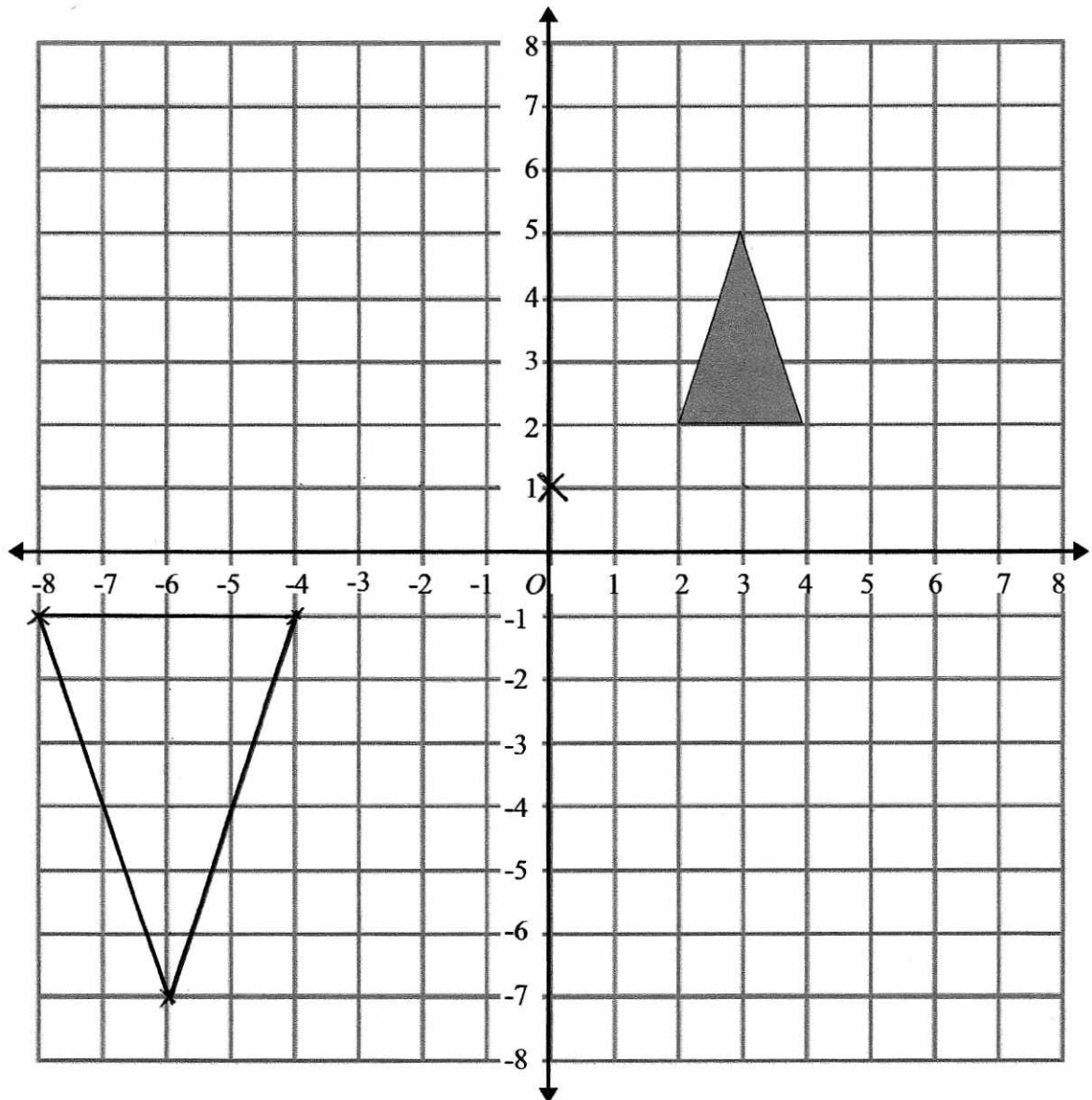
Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1



On the grid, enlarge the triangle by scale factor -2. centre (0,1)

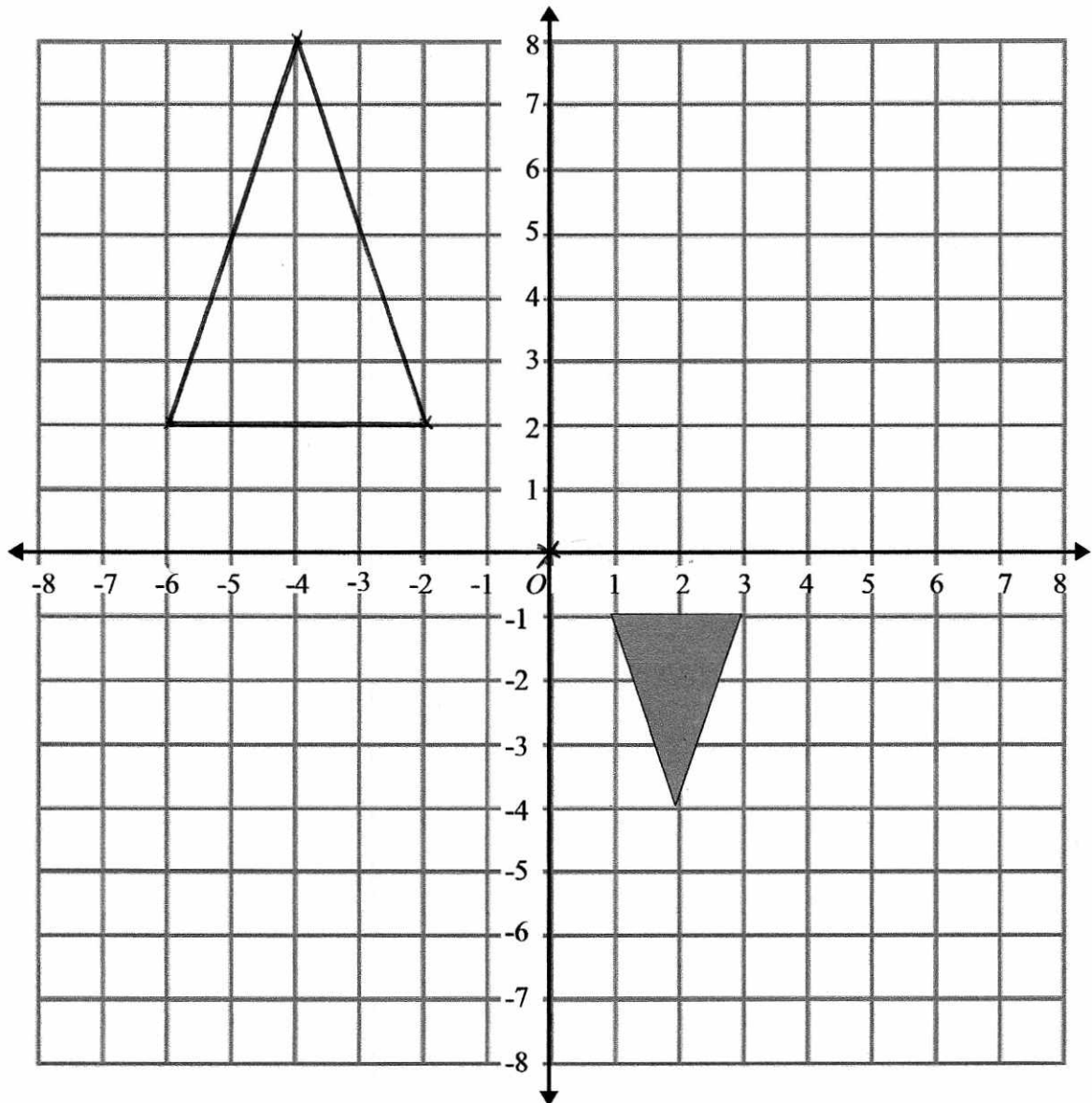
(Total for question 1 is 2 marks)

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix} \times -2 = \begin{pmatrix} -4 \\ -2 \end{pmatrix}$$

$$\begin{pmatrix} 4 \\ 1 \end{pmatrix} \times -2 = \begin{pmatrix} -8 \\ -2 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ 4 \end{pmatrix} \times -2 = \begin{pmatrix} -6 \\ -8 \end{pmatrix}$$

2



On the grid, enlarge the triangle by scale factor -2, centre O

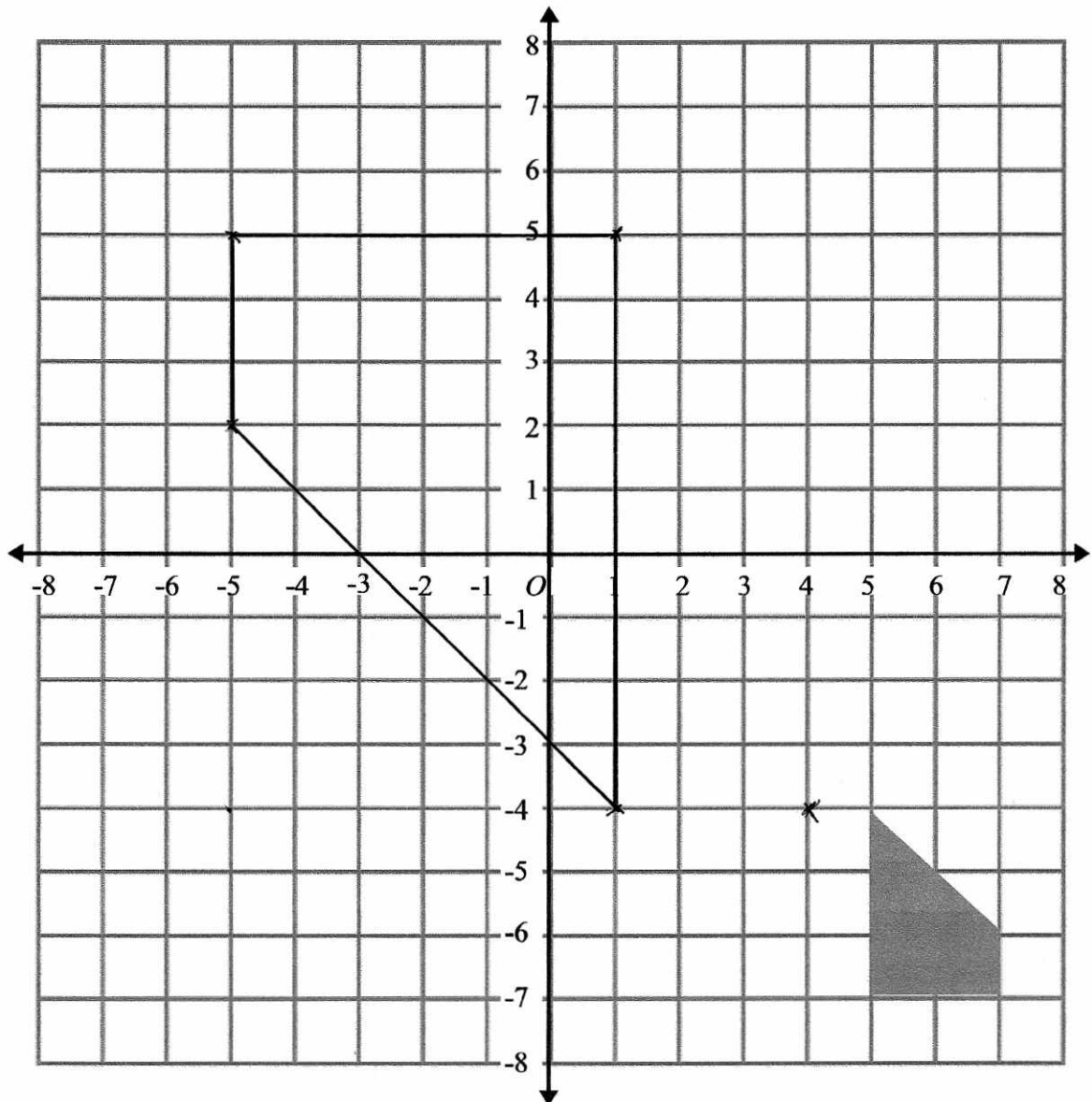
(Total for question 2 is 2 marks)

$$\begin{pmatrix} 1 \\ -1 \end{pmatrix} \times -2 = \begin{pmatrix} -2 \\ 2 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ -1 \end{pmatrix} \times -2 = \begin{pmatrix} -6 \\ 2 \end{pmatrix}$$

$$\begin{pmatrix} 2 \\ -4 \end{pmatrix} \times -2 = \begin{pmatrix} -4 \\ 8 \end{pmatrix}$$

3



On the grid, enlarge the triangle by scale factor -3. centre (4,-4)

(Total for question 3 is 2 marks)

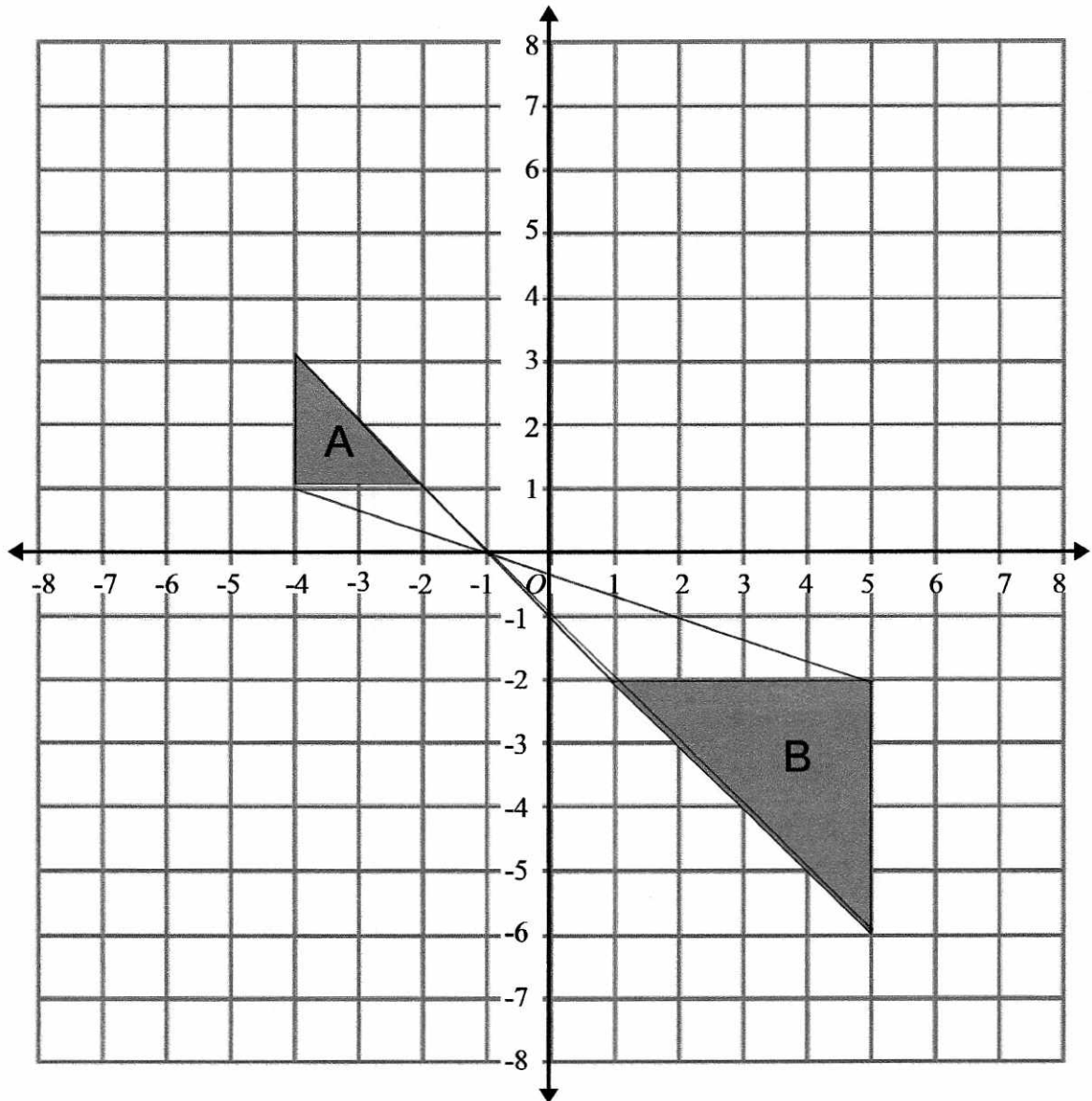
$$\begin{pmatrix} 1 \\ 0 \end{pmatrix} \times -3 = \begin{pmatrix} -3 \\ 0 \end{pmatrix}$$

$$\begin{pmatrix} 1 \\ -3 \end{pmatrix} \times -3 = \begin{pmatrix} -3 \\ 9 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ -2 \end{pmatrix} \times -3 = \begin{pmatrix} -9 \\ 6 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ -3 \end{pmatrix} \times -3 = \begin{pmatrix} -9 \\ 9 \end{pmatrix}$$

4



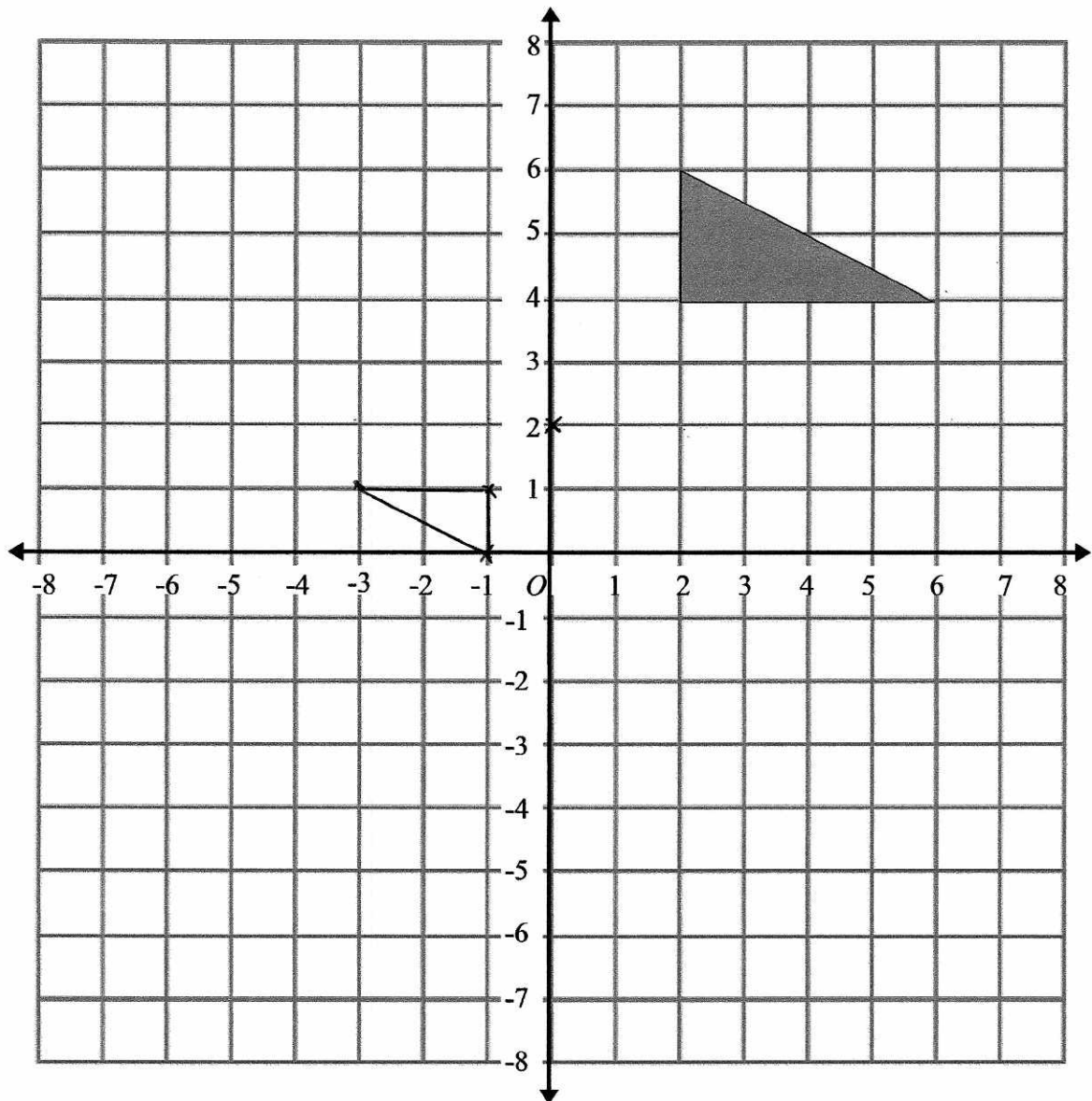
Describe fully the single transformation which maps triangle A onto triangle B.

..... Enlargement, scale factor -2, centre (-1, 0)

.....
.....

(Total for question 4 is 2 marks)

5



On the grid, enlarge the triangle by scale factor -0.5. centre (0,2)

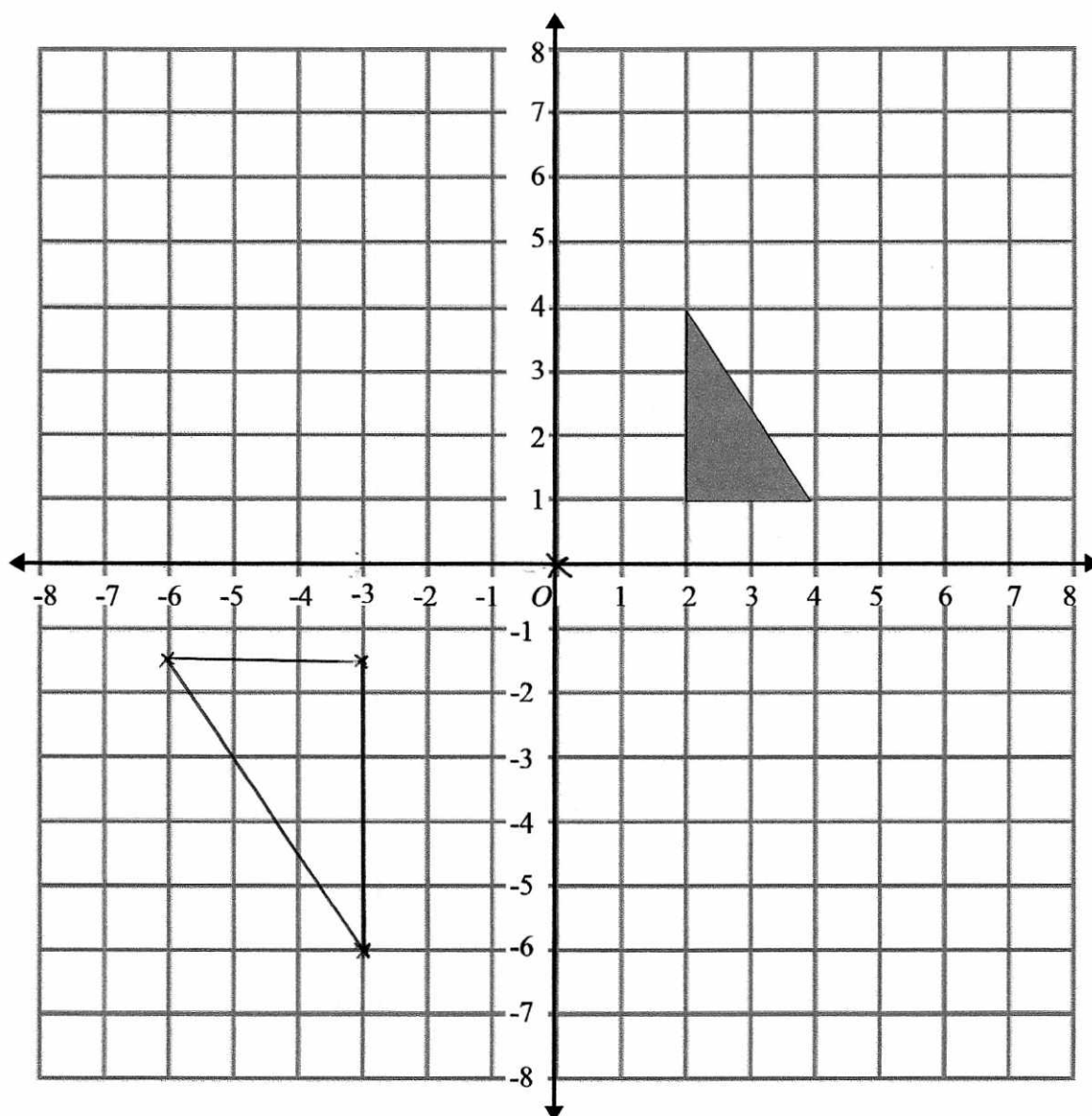
(Total for question 5 is 2 marks)

$$\begin{pmatrix} 2 \\ 2 \end{pmatrix} \times -0.5 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$\begin{pmatrix} 2 \\ 4 \end{pmatrix} \times -0.5 = \begin{pmatrix} -1 \\ -2 \end{pmatrix}$$

$$\begin{pmatrix} 6 \\ 2 \end{pmatrix} \times -0.5 = \begin{pmatrix} -3 \\ -1 \end{pmatrix}$$

6



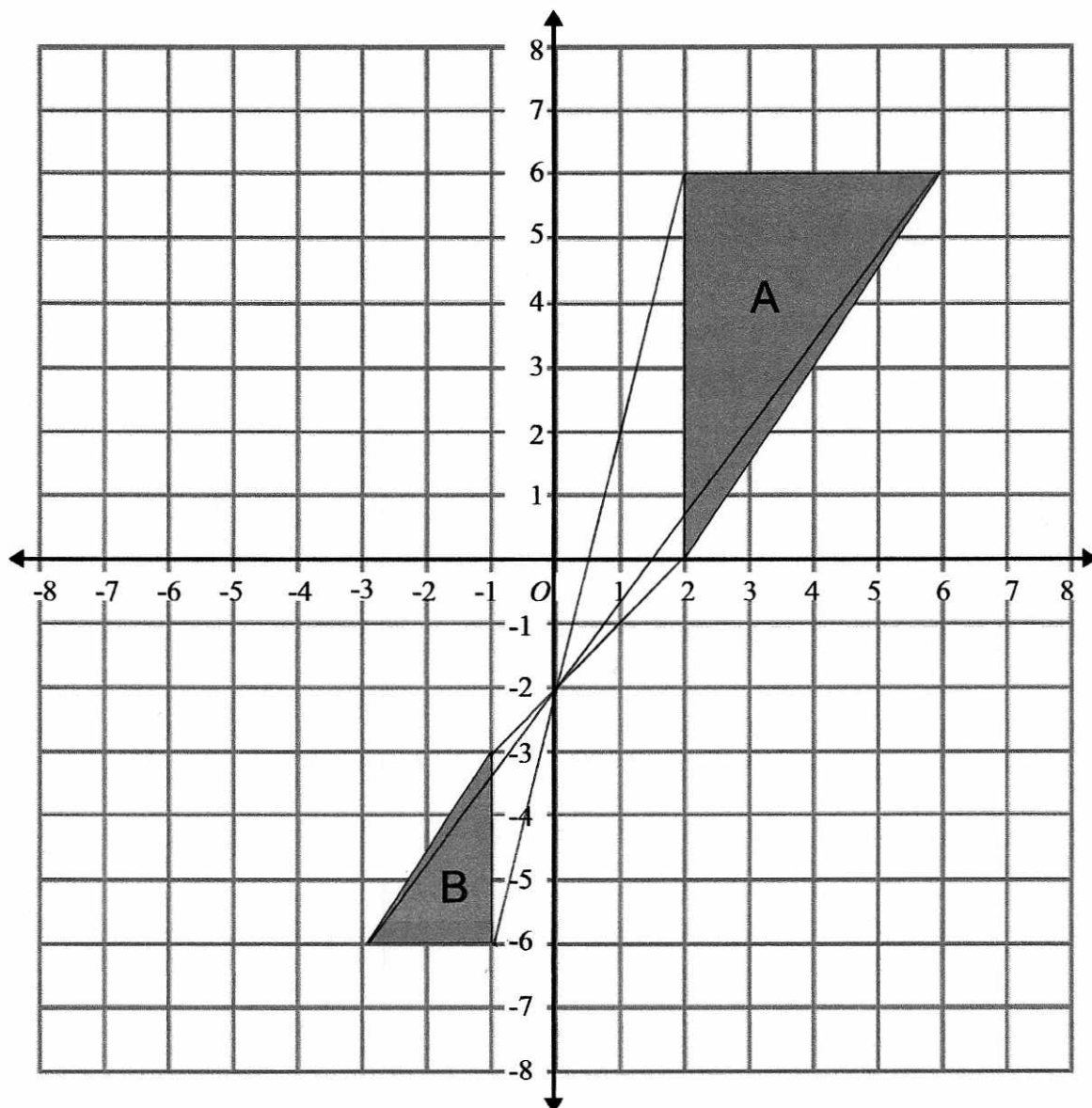
On the grid, enlarge the triangle by scale factor -1.5 , centre O .

(Total for question 6 is 2 marks)

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix} \times -1.5 = \begin{pmatrix} -3 \\ -1.5 \end{pmatrix}$$

$$\begin{pmatrix} 4 \\ 1 \end{pmatrix} \times -1.5 = \begin{pmatrix} -6 \\ -1.5 \end{pmatrix}$$

$$\begin{pmatrix} 2 \\ 4 \end{pmatrix} \times -1.5 = \begin{pmatrix} -3 \\ -6 \end{pmatrix}$$



Describe fully the single transformation which maps triangle A onto triangle B.

enlargement scale factor $\frac{1}{2}$ centre $(0, -2)$

(Total for question 7 is 2 marks)