

# A/A\* - Enlargements **NEGATIVE** scale factor



[www.bit.do/AgradeNegativeEnlargements](http://www.bit.do/AgradeNegativeEnlargements)

Question	Maximum Mark	Mark Awarded
1	4	
2	4	
3	3	
4	2	
5	3	
6	3	
<b>Total Mark</b>		



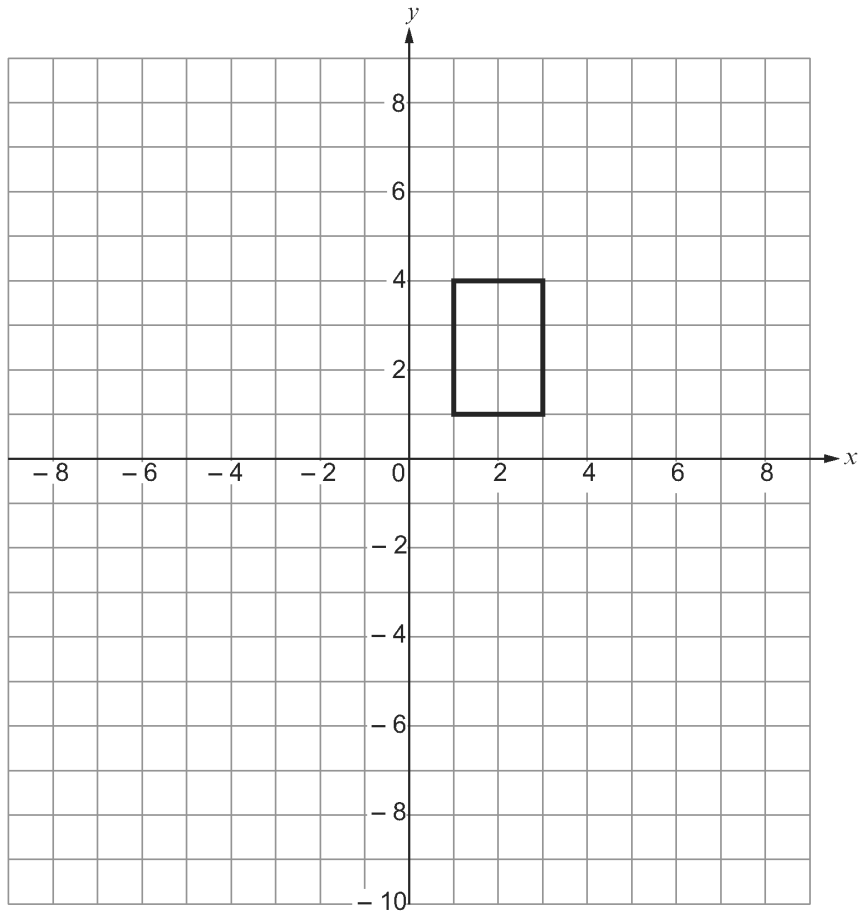
# EAS

**Education Achievement Service**  
for South East Wales  
**Gwasanaeth Cyflawni Addysg**  
i Dde Ddwyrain Cymru

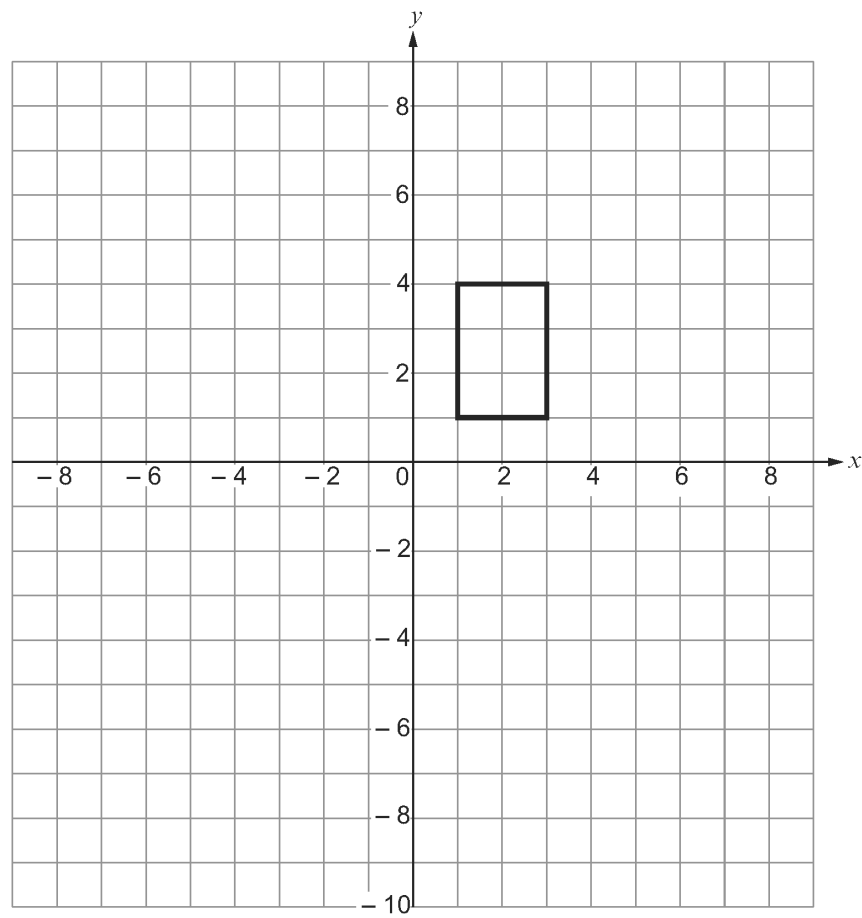
1.

(a) Rotate the rectangle through  $90^\circ$  clockwise about the origin.

[2]

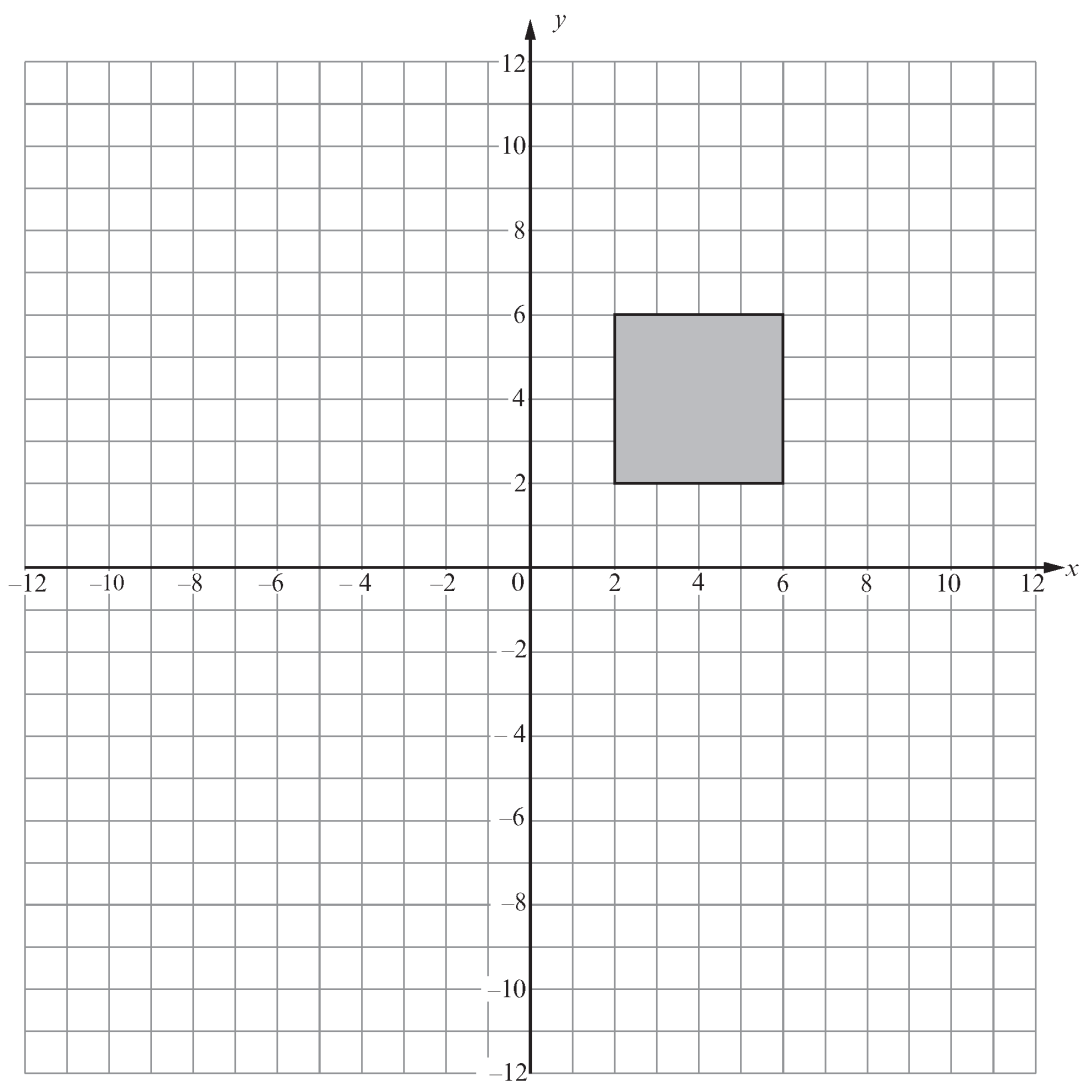


- (b) Enlarge the rectangle by a scale factor of  $-2$  using the origin as the centre of enlargement. [2]



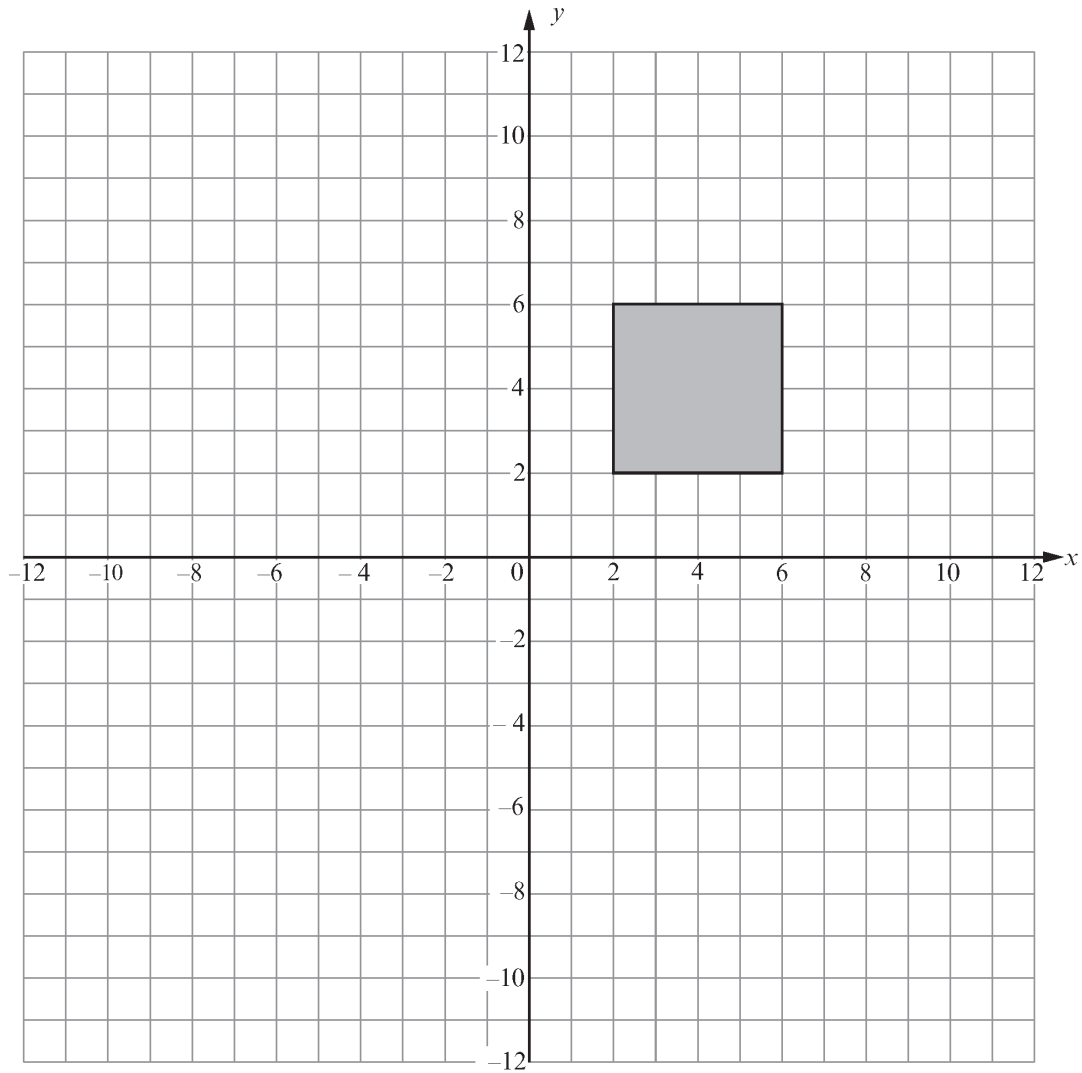
2.

(a) Rotate the square through  $90^\circ$  clockwise about the point  $(2, 1)$ .



[2]

- (b) Enlarge the square shown on the grid below by a scale factor of  $-\frac{1}{2}$  using  $(0, 0)$  as the centre of enlargement.

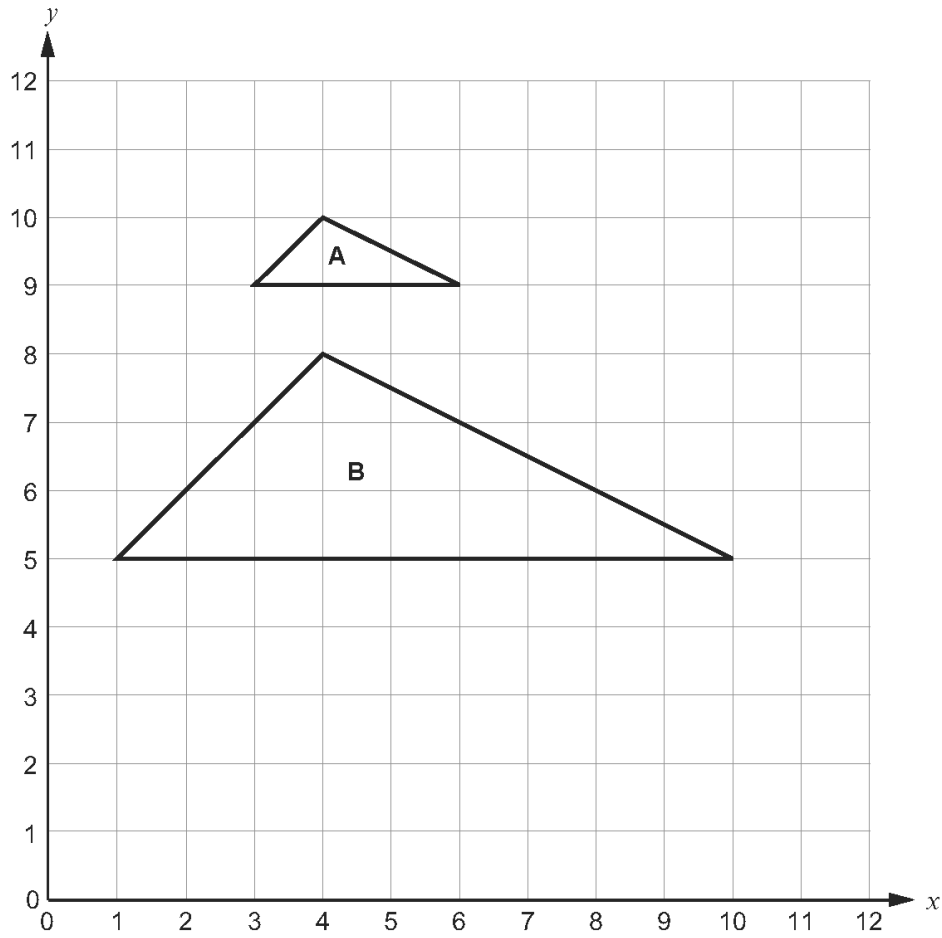


[2]

3.

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

[3]



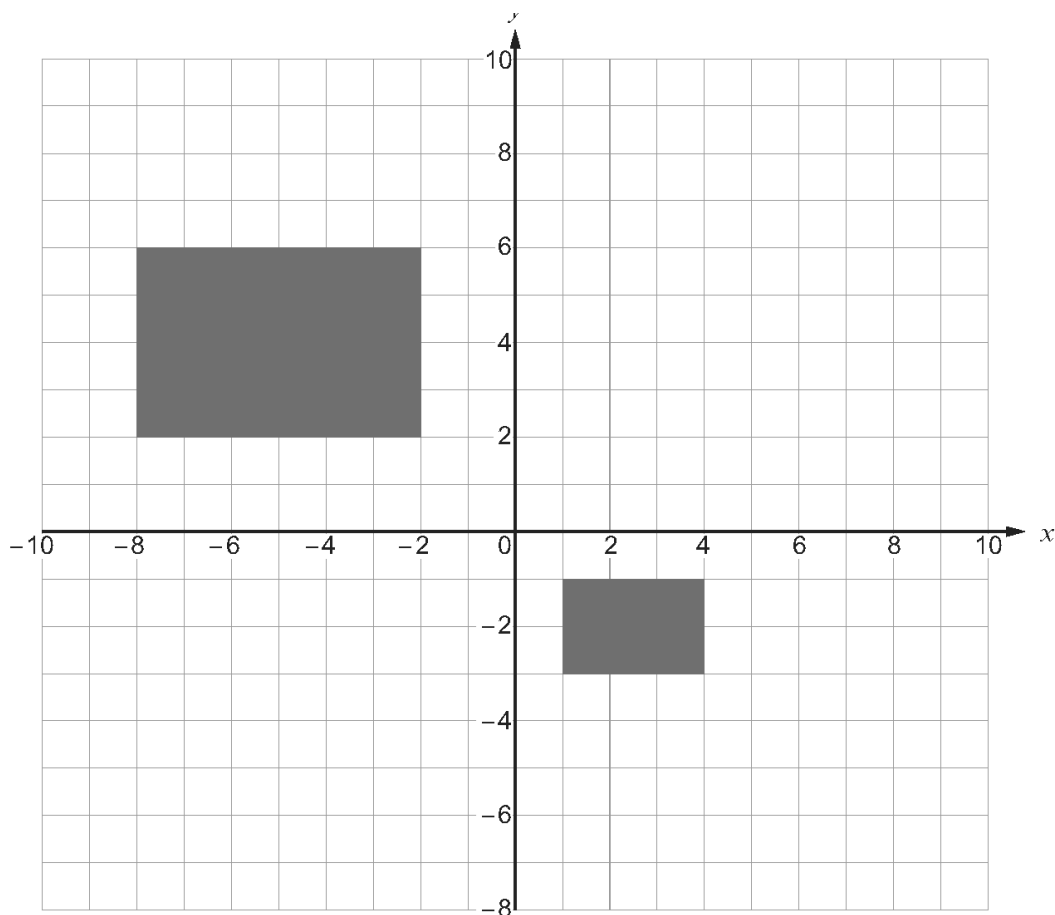
.....

.....

.....

.....

4.



The larger rectangle is transformed to the smaller rectangle.  
The coordinates of the centre of the enlargement are  $(0, 0)$ .

Complete the following sentence to fully describe this transformation. [2]

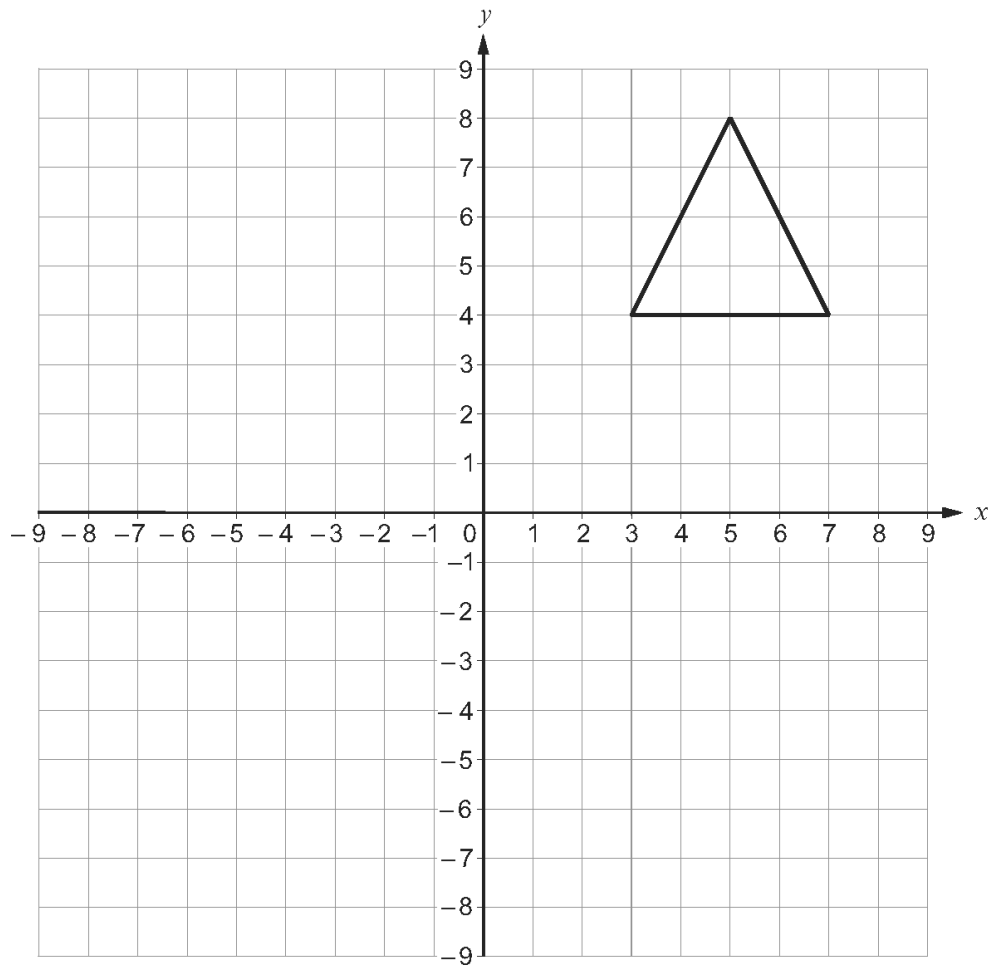
The transformation of the larger rectangle to the smaller rectangle is an enlargement with scale factor ..... and centre  $(0, 0)$ .

2

5.

Enlarge the given triangle, using scale factor  $-\frac{1}{2}$  and centre  $(3, -2)$ .

[3]



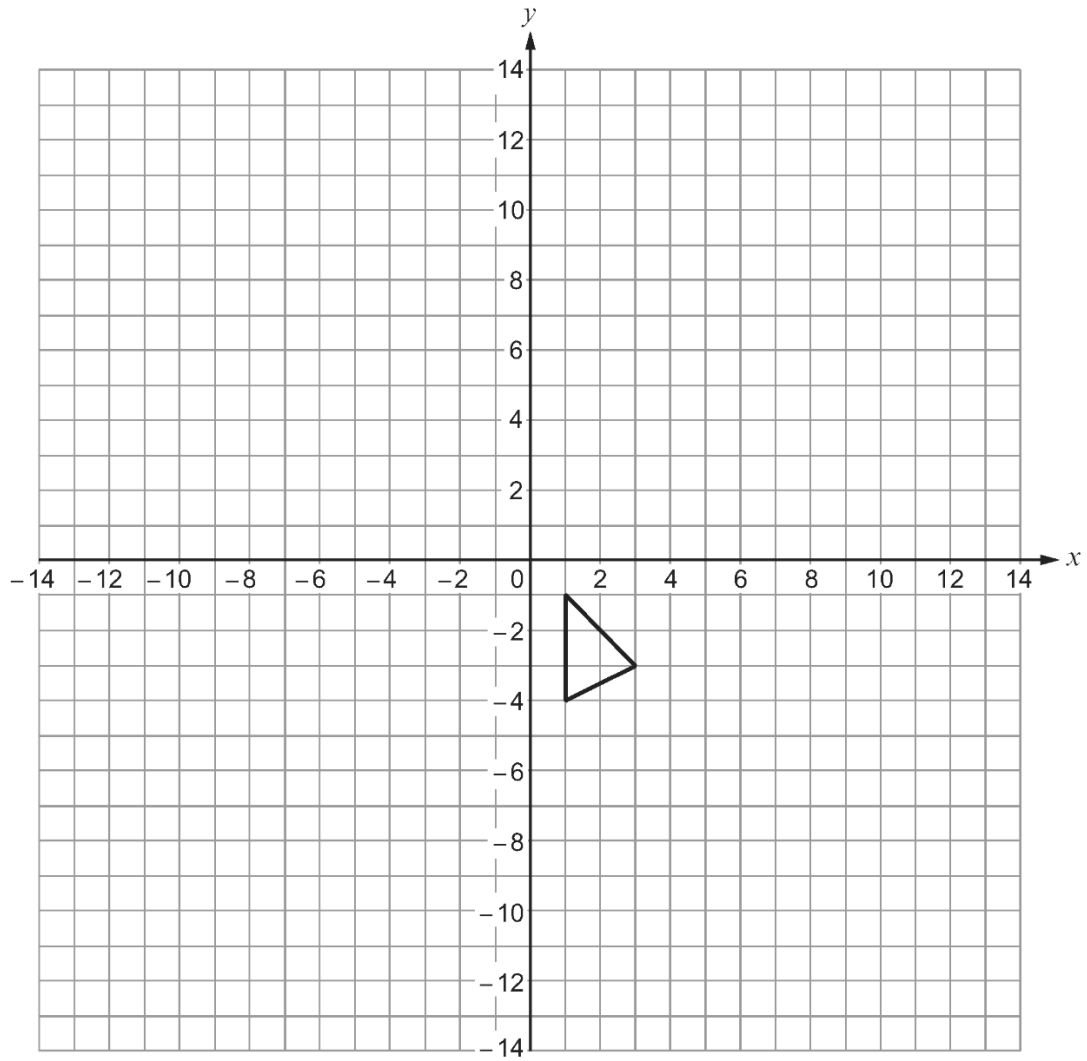


6.

Draw the enlargement of the given triangle, using

- a scale factor of  $-2$ ,
- $(-2, 1)$  as the centre of enlargement.

[3]



# Marking Scheme

1.	8.(a) Correct rotation	B2	B1 for a near miss or for 90° anticlockwise rotation  appropriate FT to lower left quadrant
	(b) Correct enlargement (scale factor 2) in lower left quadrant Correct position	B1 B1 4	

2.	10(a) Correct rotation	B2	B1 for anticlockwise rotation about (2,1), OR For clockwise rotation about (1,2)
	10(b) Enlarge scale factor ( $\pm$ )1/2 Correct position	B1 B1	Any placement For their 'enlargement', i.e working with '-' and using (0,0) as the centre

Unit 2 GCSE Maths November 2015 Higher Tier		M A R K	FINAL MARK SCHEME Comment
9. Enlargement. Scale factor of 3.  Centre (of enlargement) at (4, 11).	B1 B1  B1  3		Accept alternative terminology e.g. 'multiplier is 3'.  SC1 for 2 or more 'rays' correctly drawn, intersecting at (4, 11) if B0, B0, B0.

4.	-½ or -0.5 or 'negative half' or equivalent	B2	B1 for sight of ½ or 0.5 or half (including +½) Do not accept scale factor 2 as a misread If no marks, allow SC1 for -2
		2	

5.

Unit 2 GCSE Maths June 2015 Higher Tier	T I C K	M A R K	Comment
11. Use overlay. Correct enlargement		B3	<p>Otherwise B2 for 2 correct points (within an inverted triangle)  OR inverted triangle of correct size in incorrect position  OR consistent use of an incorrect <b>negative</b> fractional scale factor (in correct position)</p> <p>B1 for 1 correct point (within an inverted triangle)  OR any 2 correct points (not within an inverted triangle)  OR consistent use of scale factor <math>+ \frac{1}{2}</math> (in correct position)  OR consistent use of an incorrect <b>negative</b> fractional scale factor in incorrect position</p>

6.

Correct enlargement		B3	<p>Otherwise B2 for 2 correct vertices within a triangle.  OR for 3 correct vertices in the correct location not joined to form the triangle  OR inverted triangle of correct size in incorrect position  OR consistent correct use of an incorrect negative scale factor</p> <p>B1 for 1 or 2 correct points  OR consistent use of scale factor +2 (in correct position)  OR consistent use of an incorrect negative scale factor in incorrect position.</p>
---------------------	--	----	---

## Examiner's Comments

1. Part (a) was well answered. However, it seems that candidates have some experience of drawing rays to aid enlargement, but that this knowledge is not secure, as part (b) was not well answered

*This comment originally referred to question 8 on paper 4364/02 (01/08/2015)*

2. Part (a) was well answered. Where errors occurred it was often from using (2,1) as a vertex of the square, i.e. attaching the square to the point (2,1) and then rotating from here.

In part (b) many candidates drew the square with correct dimensions, but not necessarily in the correct position. Candidates showing 'ray' lines often did show a correct response.

*This comment originally referred to question 10 on paper 4352/02 (03/01/2014)*

3. Describing the transformation was done better than in previous examinations. Most candidates recognised this as an enlargement, with many giving the correct scale factor of 3, but many omitted to specify a centre or did so incorrectly. A significant number of candidates did not use the appropriate terminology e.g. using 'multiplier' instead of 'scale factor', or 'origin' instead of 'centre of enlargement'. Some candidates stated incorrectly that triangle B was 'three times the size' of triangle A.

*This comment originally referred to question 9 on paper 4352/02 (06/11/2015)*

4. This question was not well answered. The correct response was rarely seen.

*This comment originally referred to question 9 on paper 4364/02 (16/01/2017)*

5. Most candidates knew what was meant by an enlargement and were able to draw a new triangle with the correct dimensions. However, very few dealt successfully with the negative scale factor. Those who knew how to use the given centre often produced an image by using a scale factor of  $\frac{1}{2}$  rather than  $-\frac{1}{2}$ .

*This comment originally referred to question 11 on paper 4352/02 (04/06/2015)*

6. This question was not answered particularly well. There were numerous errors seen within the scripts, ranging from using a positive enlargement (sometimes fractional), a negative enlargement using the incorrect scale factor, or using the incorrect centre of enlargement. Many candidates made more than one of these errors gaining few, if any, marks.

*This comment originally referred to question 10 on paper 3300/06 (10/11/2016)*

