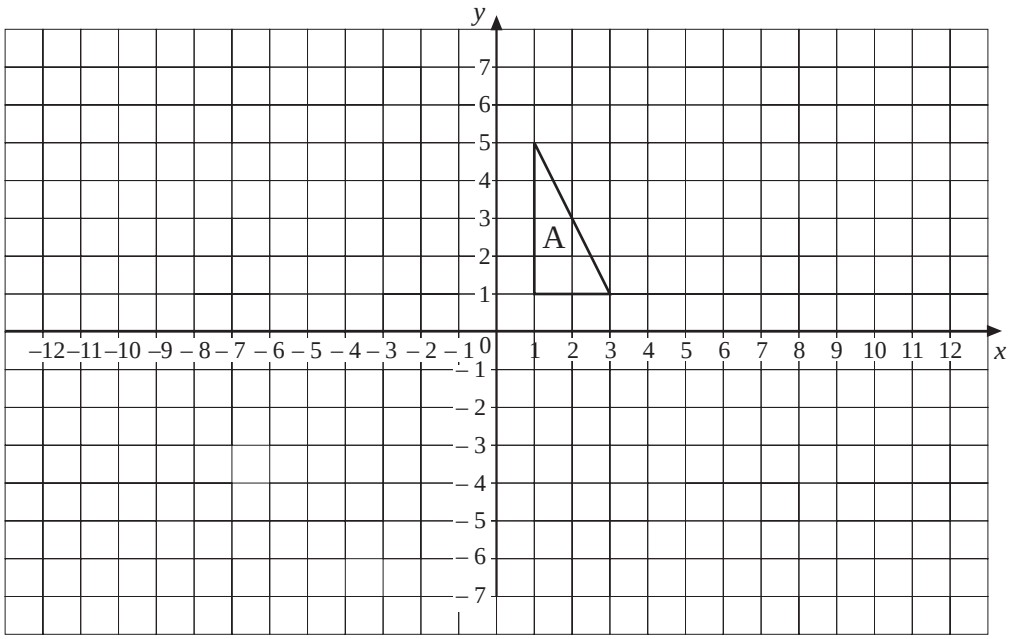
UNIT 7 *Transformations* — Revision Test 7.1 (Standard)

1. Copy the following diagram.

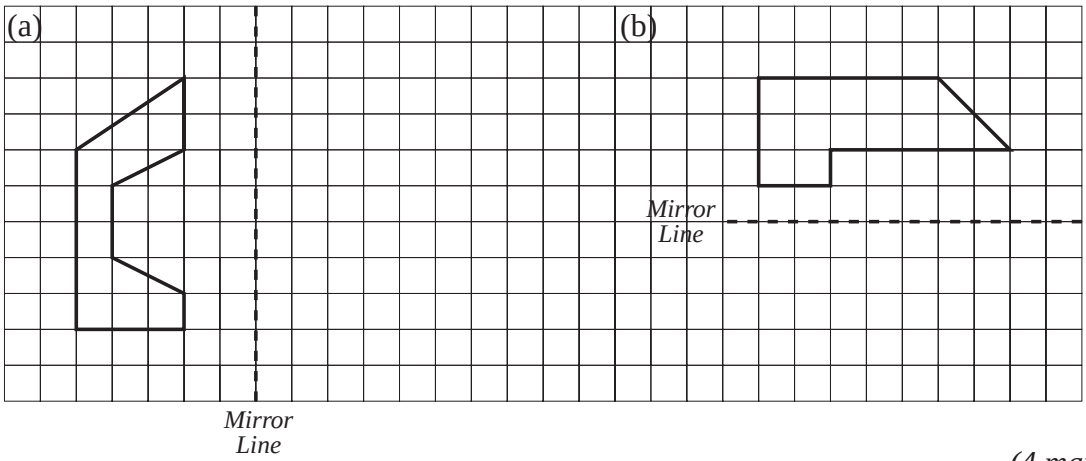


Translate the triangle A by each of the following vectors:

(a) $\begin{pmatrix} 8 \\ 1 \end{pmatrix}$ (b) $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$ (c) $\begin{pmatrix} -6 \\ 2 \end{pmatrix}$ (d) $\begin{pmatrix} -9 \\ -4 \end{pmatrix}$

(8 marks)

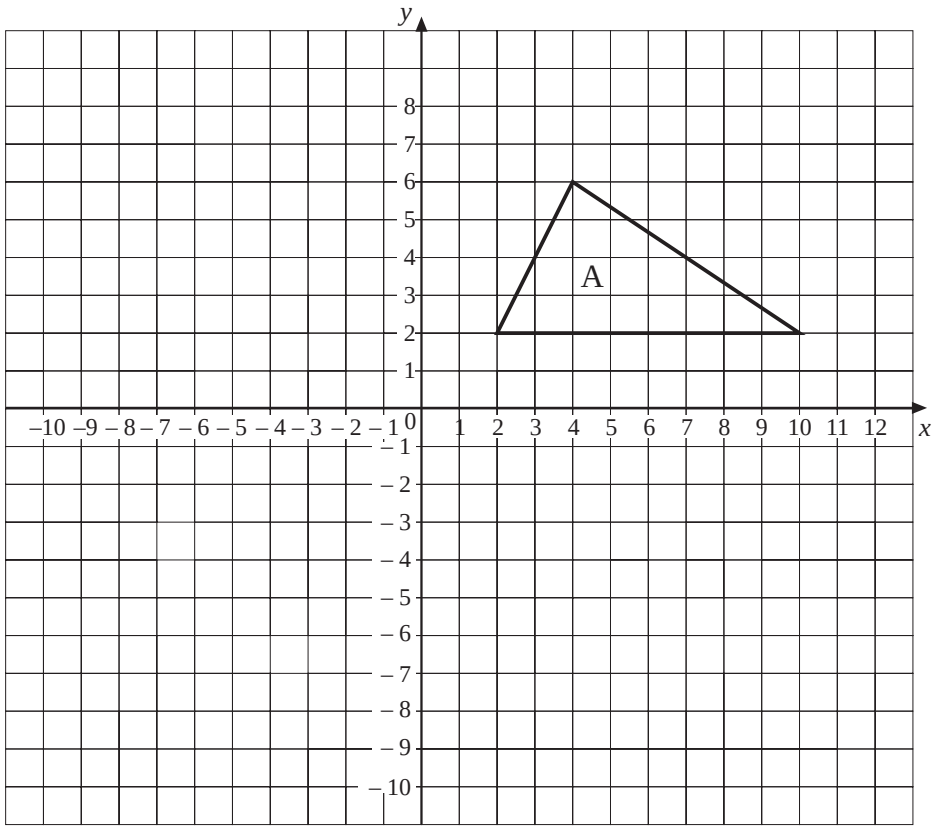
2. Copy each of the following shapes and draw its reflection in the mirror line shown:



(4 marks)

Revision Test 7.1 (Standard)

3. Copy the following diagram.



Rotate the triangle A through:

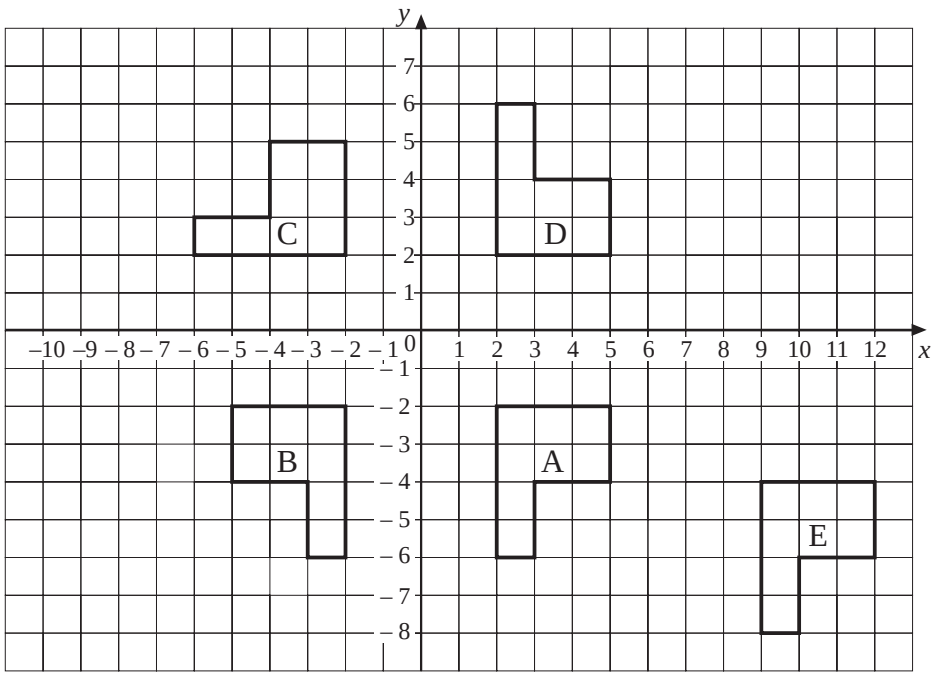
(a) 90 ° clockwise around (0, 0),

(b) 180 ° around (0, 0).

(4 marks)

Revision Test 7.1 (Standard)

4. The diagram shows some transformations of the shape A.



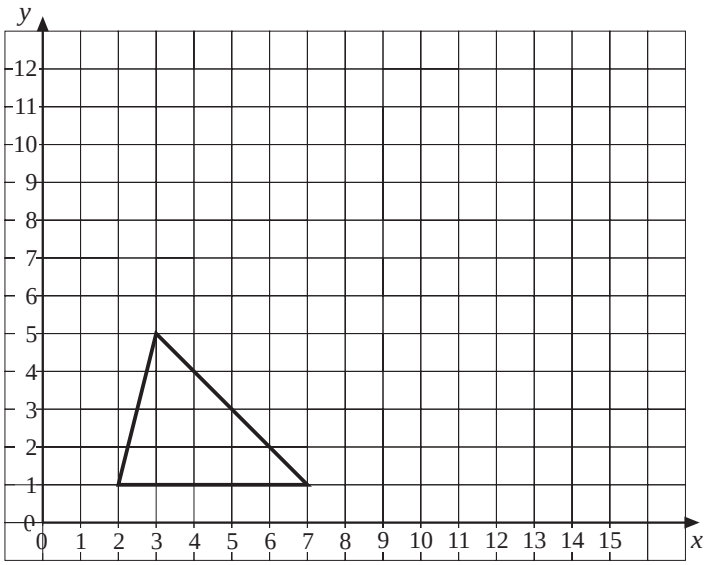
Describe the transformation that moves:

(a) A to B, (b) A to D,

(c) A to E, (d) D to C.

(10 marks)

5. Copy the diagram below. Enlarge the triangle shown with scale factor 2, using (0, 0) as the centre of enlargement.



(4 marks)

UNIT 7 *Transformations* Revision Test 7.2 (Academic)

1. The triangle A has corners at the points with coordinates (3, 7), (2, 4) and (4, – 2).

   (a) Draw the triangle.

   (b) Translate A using the vector $\begin{pmatrix} -6 \\ -3 \end{pmatrix}$ to obtain B.

   (c) Translate B using the vector $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$ to obtain C.

   (d) What vector would you use to translate A straight to C ?

   (7 marks)

2. The triangle A has corners at the points with coordinates (2, 2), (1, 7) and (5, 3).

   (a) Draw the triangle.

   (b) Reflect the triangle A in the *y*-axis and label it B.

   (c) Reflect the triangle A in the line $x = 8$ and label it C.

   (d) Reflect the triangle B in the line $y = 1$ and label it D.

   (7 marks)

3. A quadrilateral has corners at the points with coordinates (4, 2), (3, 6), (2, 5) and (1, 1).

   (a) Draw the quadrilateral.

   (b) Rotate the quadrilateral through $90\,°$ clockwise around the point with coordinates (0, 0) and label it B.

   (c) Rotate the quadrilateral through $180\,°$ about the point with coordinates (5, 2) and label it C.

   (5 marks)

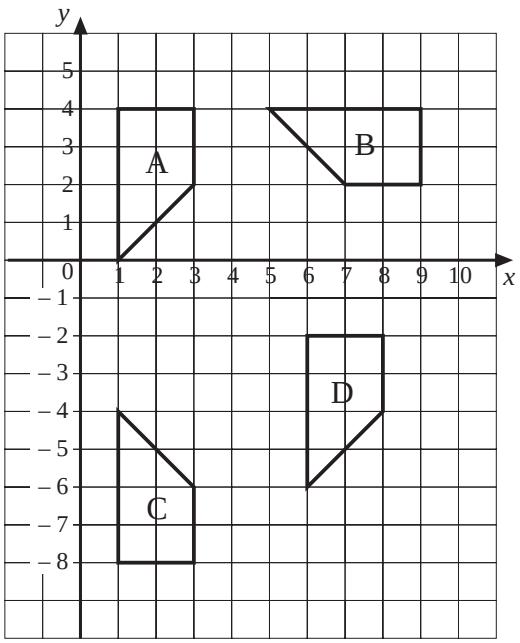
4. (a) Draw the triangle which has corners at the points with coordinates (2, 2), (3, 5) and (4, 0).

   (b) Enlarge the triangle using the point with coordinates (0, 2) as the centre of enlargement and with scale factor 3.

   (3 marks)

Revision Test 7.2 (Academic)

5. On the following diagram the shape A is transformed to give the shapes B, C and D.



Describe the transformations that move:

(a) A to B,

(b) A to C ,

(c) A to D.

(8 marks)

UNIT 7 *Transformations* Revision Test 7.3 (Express)

1. The triangle A has corners at the points with coordinates (4, 0), (4, 7) and (2, 4).

   (a) Draw the triangle A.

   (b) Reflect the triangle A in the line $x = 5$ to obtain triangle B.

   (c) Reflect triangle B in the *y*-axis to obtain triangle C.

   (d) Describe the transformation that would take triangle A directly to triangle C.

(5 marks)

2. The quadrilateral A has corners at the points with coordinates (2, 3), (1, 5), (2, 7) and (3, 6).

   (a) Draw the quadrilateral A.

   (b) Reflect A in the line $y = x$ to obtain B.

   (c) Reflect A in the line $y = -x$ to obtain C.

   (d) Describe how to obtain B from C.

(5 marks)

3. The pentagon A has corners at the points with coordinates (0, 1), (2, 1), (4, 3), (4, 5) and (2, 5).

   (a) Draw the pentagon A.

   (b) Rotate A through $180\,^\circ$ around the point (5, 0) to obtain B.

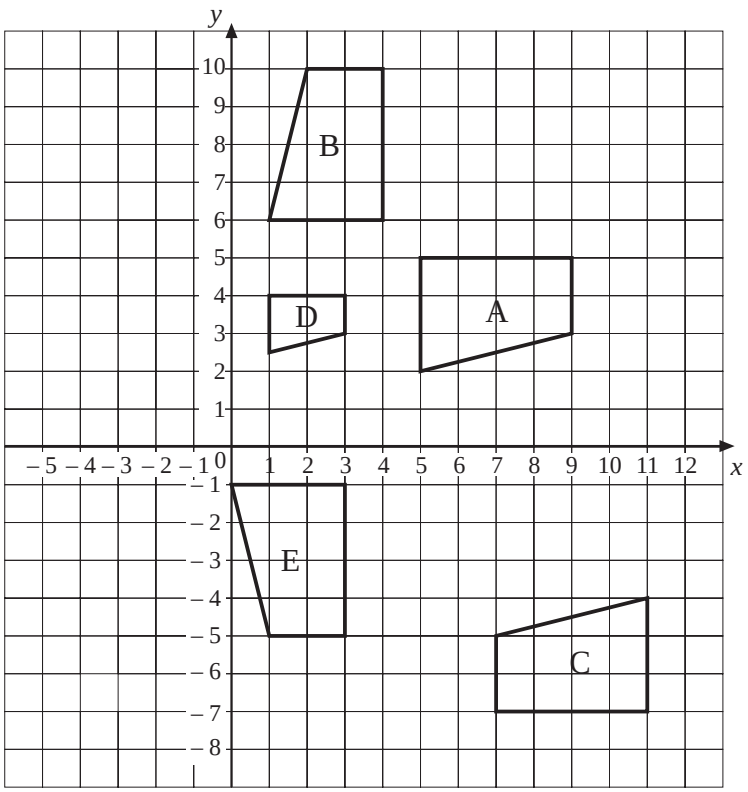
   (c) Rotate B through $90\,^\circ$ anticlockwise around the point (5, – 6) to obtain C.

   (d) Describe the transformation that takes C back to A.

(8 marks)

Revision Test 7.3 (Express)

4. The diagram shows the shape A and some transformations of this shape.



Describe the transformation that moves:

(a) A to B,

(b) A to C,

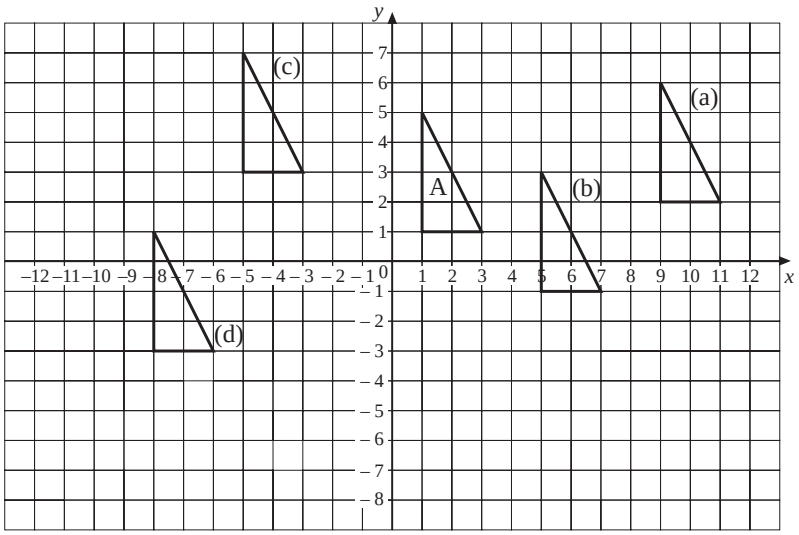
(c) A to D,

(d) C to E.

(12 marks)

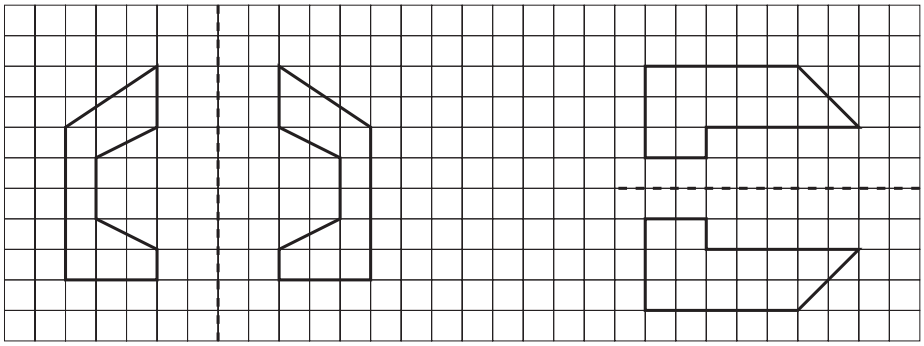
Revision Test 7.1 (Standard) Answers

1.



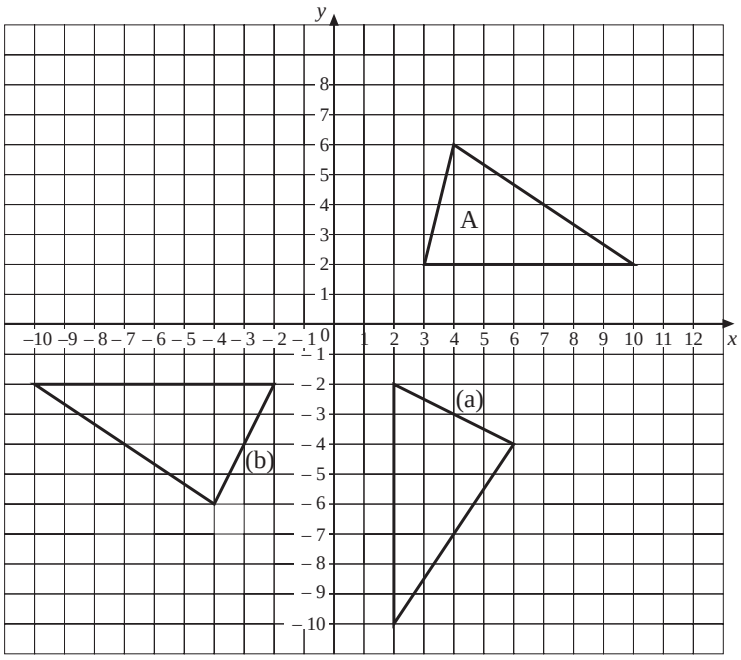
B2
B2
B2
B2 *(8 marks)*

2.



B2
B2
(4 marks)

3.



B2
B2 *(4 marks)*

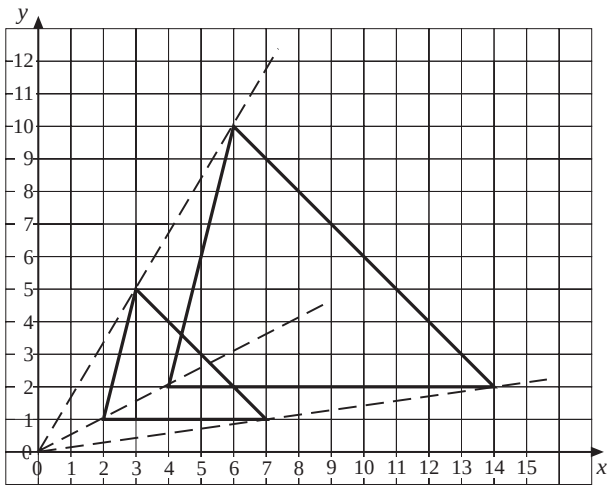
Revision Test 7.1 (Standard) ANSWERS

4. (a) Reflection in *y*-axis B1 B1

   (b) Reflection in *x*-axis B1 B1

   (c) Translation by $\begin{pmatrix} 7 \\ -2 \end{pmatrix}$ B1 B1

   (d) Rotation $90°$ anticlockwise about (0, 0) B1 B1 B1 B1 *(10 marks)*

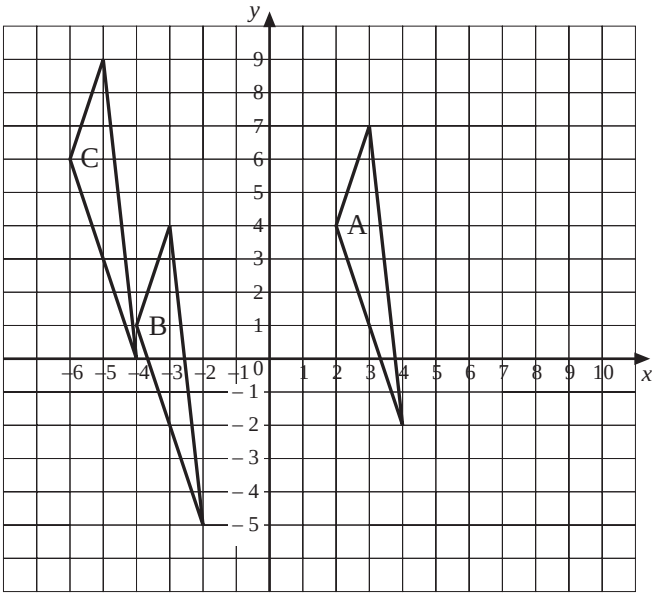
5. 

B4 *(4 marks)*

(TOTAL MARKS 30)

Revision Test 7.2 (Academic) Answers

1. (a)



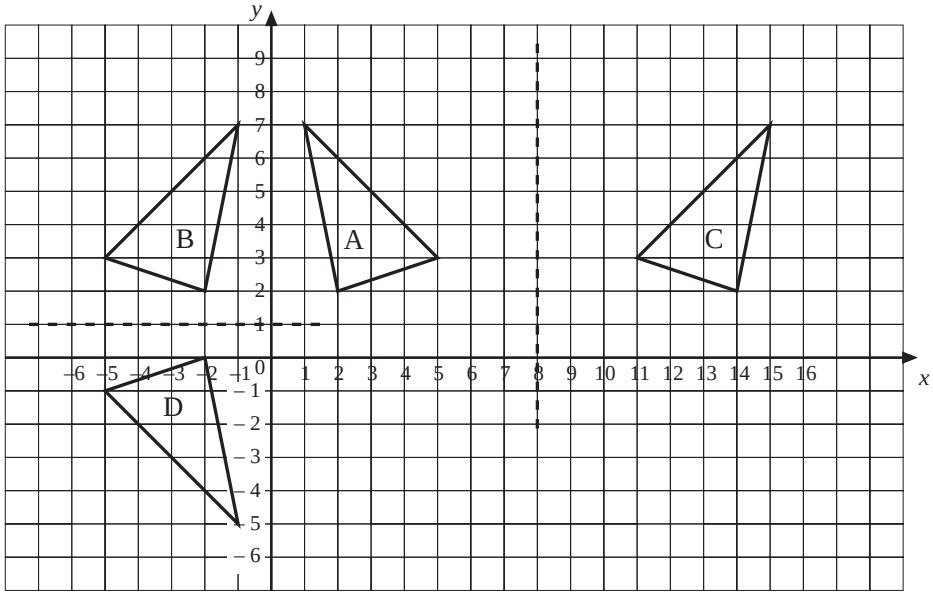
B1

(b) B2

(c) B2

(d) $\begin{pmatrix} -8 \\ 2 \end{pmatrix}$ B1 B1 *(7 marks)*

2. (a)



B1

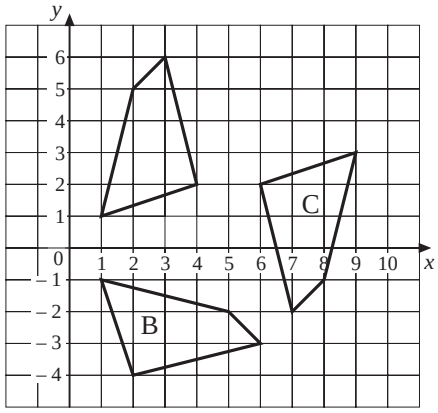
(b) B2

(c) B2

(d) B2

(7 marks)

3. (a)



B1

(b) B2

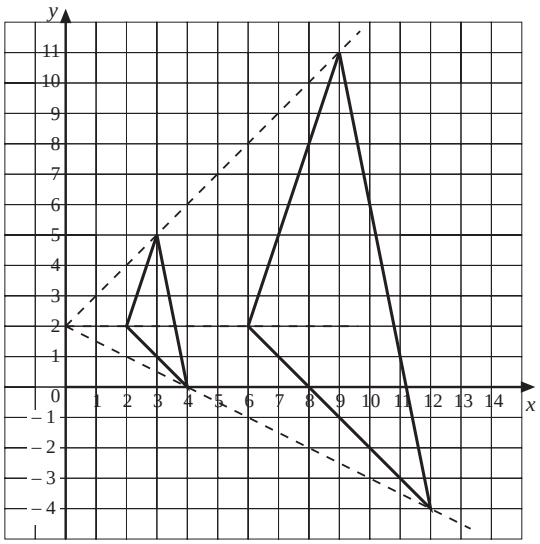
(c) B2

(5 marks)

Revision Test 7.2 (Academic) ANSWERS

4. (a) B1

(b) B2



(3 marks)

5. (a) Rotation, $90\,°$ clockwise around (5, 0) B1 B1 B1 B1

(b) Reflection in the line $y = -2$ B1 B1

(c) Translation by $\begin{pmatrix} 5 \\ -6 \end{pmatrix}$ B1 B1 *(8 marks)*

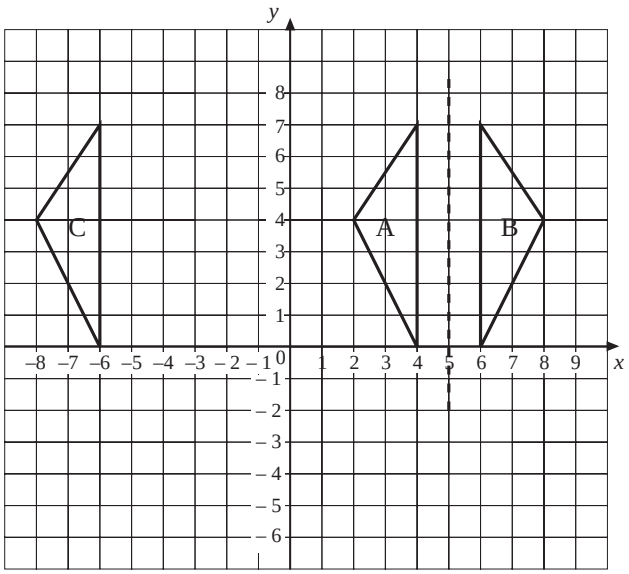
(TOTAL MARKS 30)

Revision Test 7.3 (Express) Answers

1. (a) B1

(b) B1

(c) B1

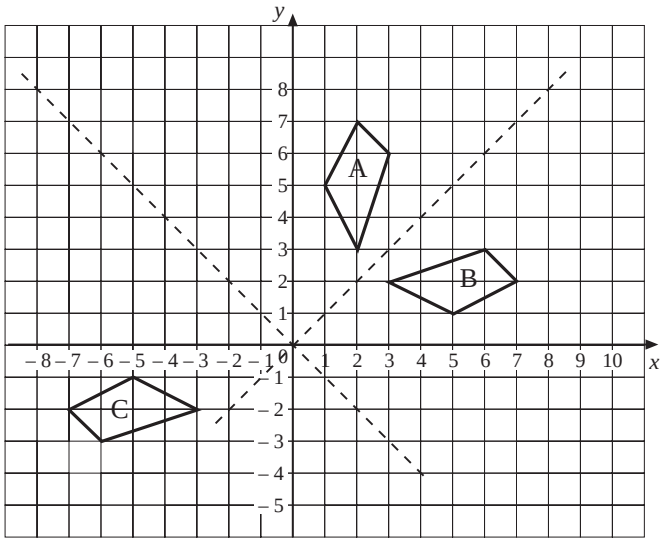


(d) Translation $\begin{pmatrix} -10 \\ 0 \end{pmatrix}$ B1 B1 *(5 marks)*

2. (a) B1

(b) B1

(c) B1

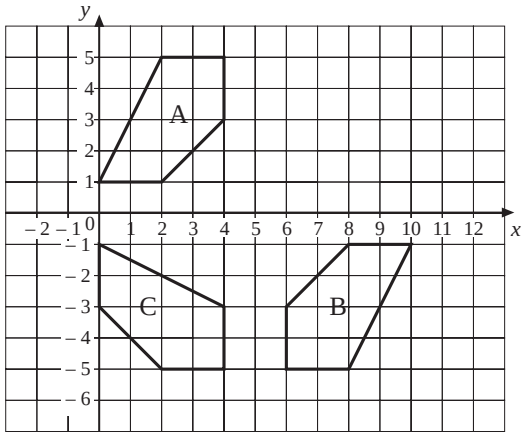


(d) Rotation 180 ° about (0, 0) B1 B1 *(5 marks)*

3. (a) B1

(b) B2

(c) B2



(d) Rotation 90 ° anticlockwise around (– 1, 0) B1 B1 B1 *(8 marks)*

Revision Test 7.3 (Express) ANSWERS

4. (a) $A \rightarrow B$ Reflection in the line $y = x + 1$ B1 B1

(b) Rotation around $(8, -1)$ of $180°$ B1 B1 B1

(c) Enlargement scale factor $\frac{1}{2}$, centre $(-3, 3)$ B1 B1 B1

(d) Rotation $90°$ anticlockwise around $(4, -8)$ B1 B1 B1 B1 *(12 marks)*

(TOTAL MARKS 30)