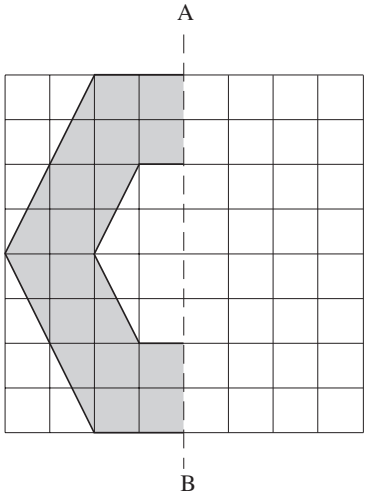
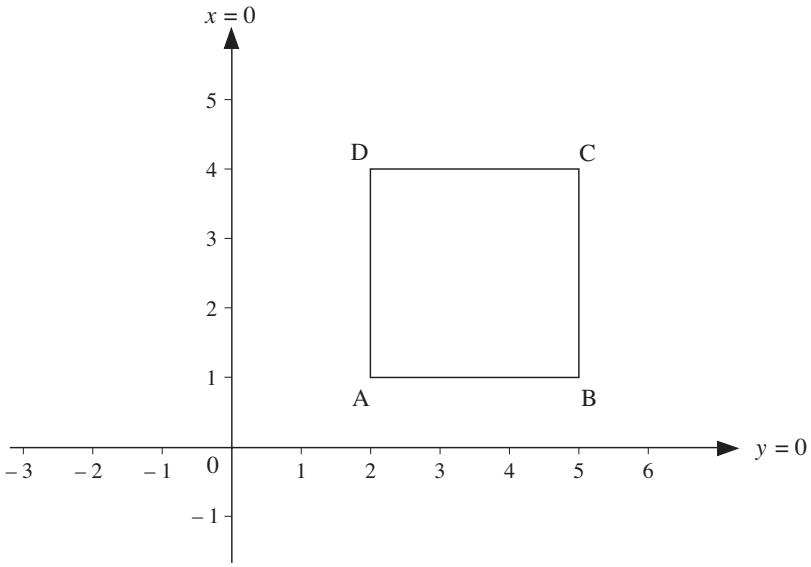
UNIT 36 *Further Transformations* CSEC Revision Test

1. The diagram represents a kitchen tile with only one half of the pattern drawn. The pattern is symmetrical about the line AB.



Copy and complete the pattern. *(2 marks)*

2.

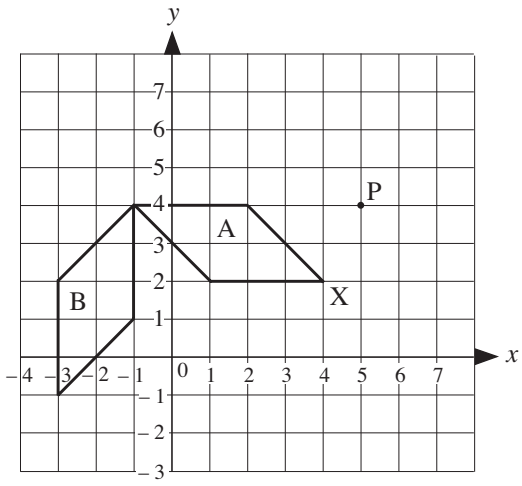


(a) The square ABCD is reflected in the line $x = 1$.
What are the new coordinates of C? *(2 marks)*

(b) The square ABCD is rotated about the centre $(2, 0)$ until B is at $(-2, 0)$.
What are the new coordinates of C? *(2 marks)*

UNIT 36 *Further Transformations* CSEC Revision Test

3.

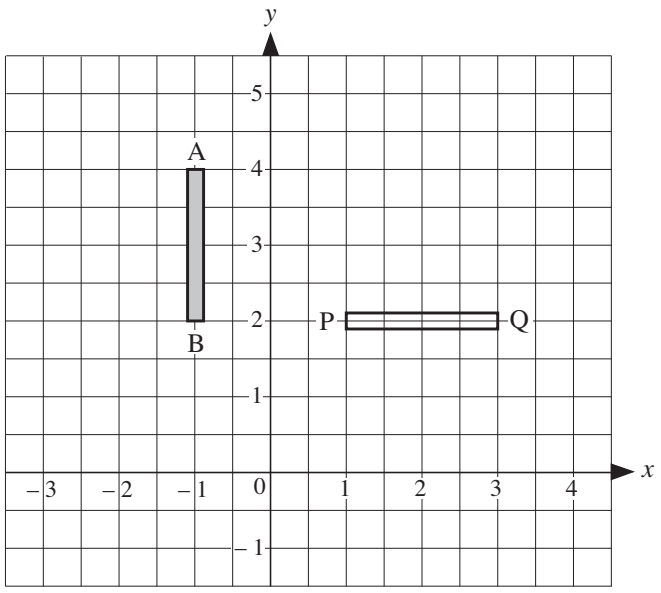


From this diagram:

(a) describe fully the transformation which maps parallelogram A onto parallelogram B. *(3 marks)*

(b) If the parallelogram A is enlarged, scale factor 3, with centre of enlargement at P, write down the coordinates of the point onto which the corner X is mapped. *(2 marks)*

4. The diagram shows the plan of a building site drawn on a grid. A large pipe, AB, is to be moved by a crane. The crane rotates it and places it in a trench, PQ. The crane stands at the centre of rotation.



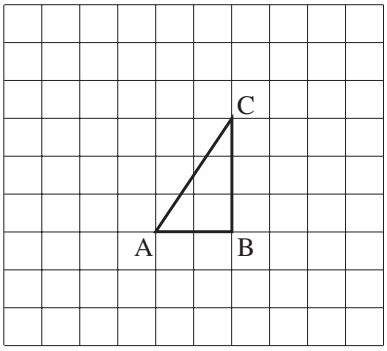
The end, A, is moved to P and B is moved to Q. Answer the following questions.

(a) State the coordinates of the centre of rotation. *(2 marks)*

(b) Find the angle of rotation, stating whether it is clockwise or anticlockwise. *(2 marks)*

UNIT 36 *Further Transformations* CSEC Revision Test

5.



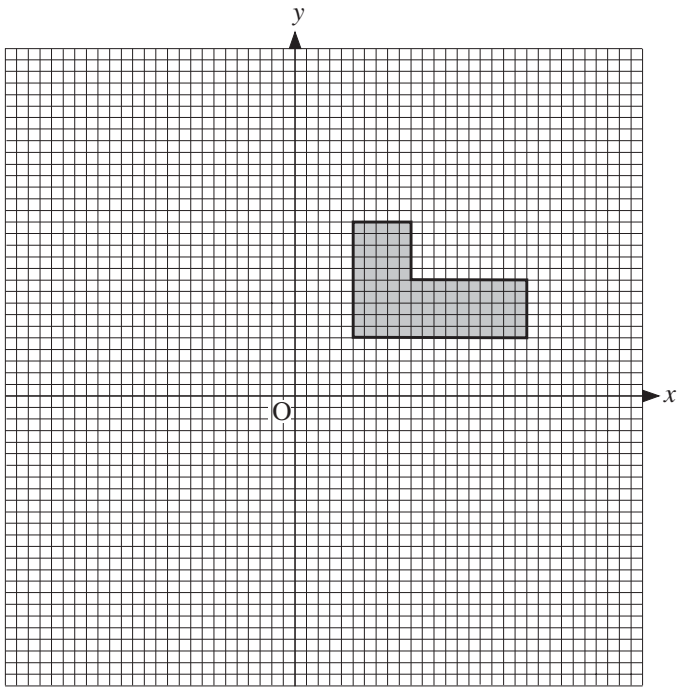
(a) On a copy of the diagram, rotate triangle ABC anticlockwise through $90°$ about A. Label the image T. *(2 marks)*

(b) On a copy of the diagram, rotate triangle ABC anticlockwise through $90°$ about C. Label the image S. *(2 marks)*

(c) Describe fully the single transformation which will map T onto S. *(2 marks)*

6. (a) On a copy of the diagram below, draw the image of the shaded shape after a rotation of $\frac{1}{4}$ turn clockwise about the origin O. Label this shape A. *(2 marks)*

(b) Draw also the image of shape A after a reflection in the y-axis. Label this shape B. *(2 marks)*



(c) Describe the single transformation that will transform the shaded shape directly to the shape labelled B. *(3 marks)*

UNIT 36 *Further Transformations* CSEC Revision Test

7. On the axes on page 5 a trapezium, ABCD, has been drawn.

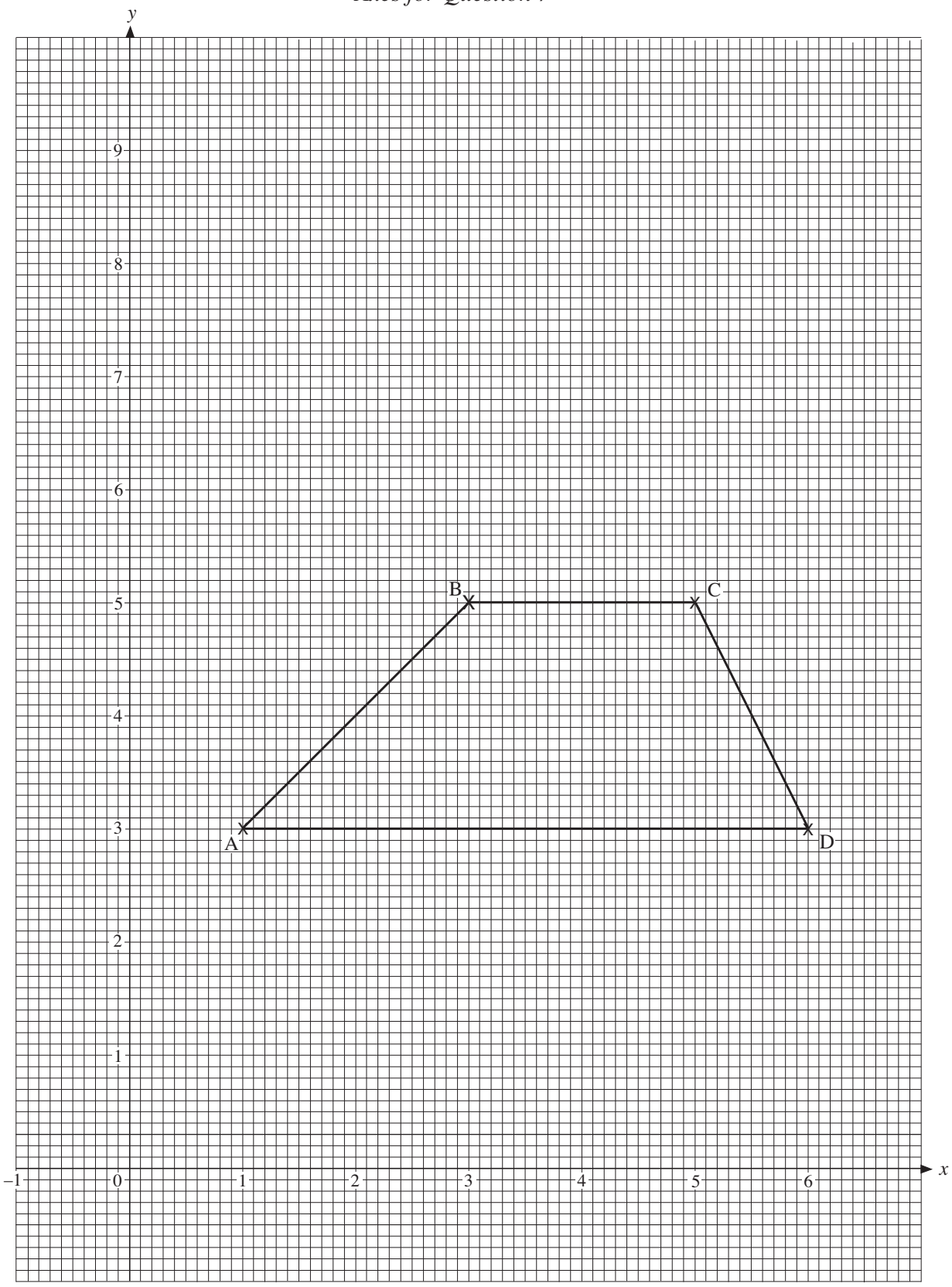
(a) On a copy of the diagram, rotate ABCD though $90°$ in an anticlockwise direction about the point A to form the trapezium AB'C'D'. *(2 marks)*

(b) Reflect ABCD in the line through AD to form the trapezium AB"C"D. *(2 marks)*

(c) What single transformation will transform AB'C'D' onto AB"C"D? *(3 marks)*

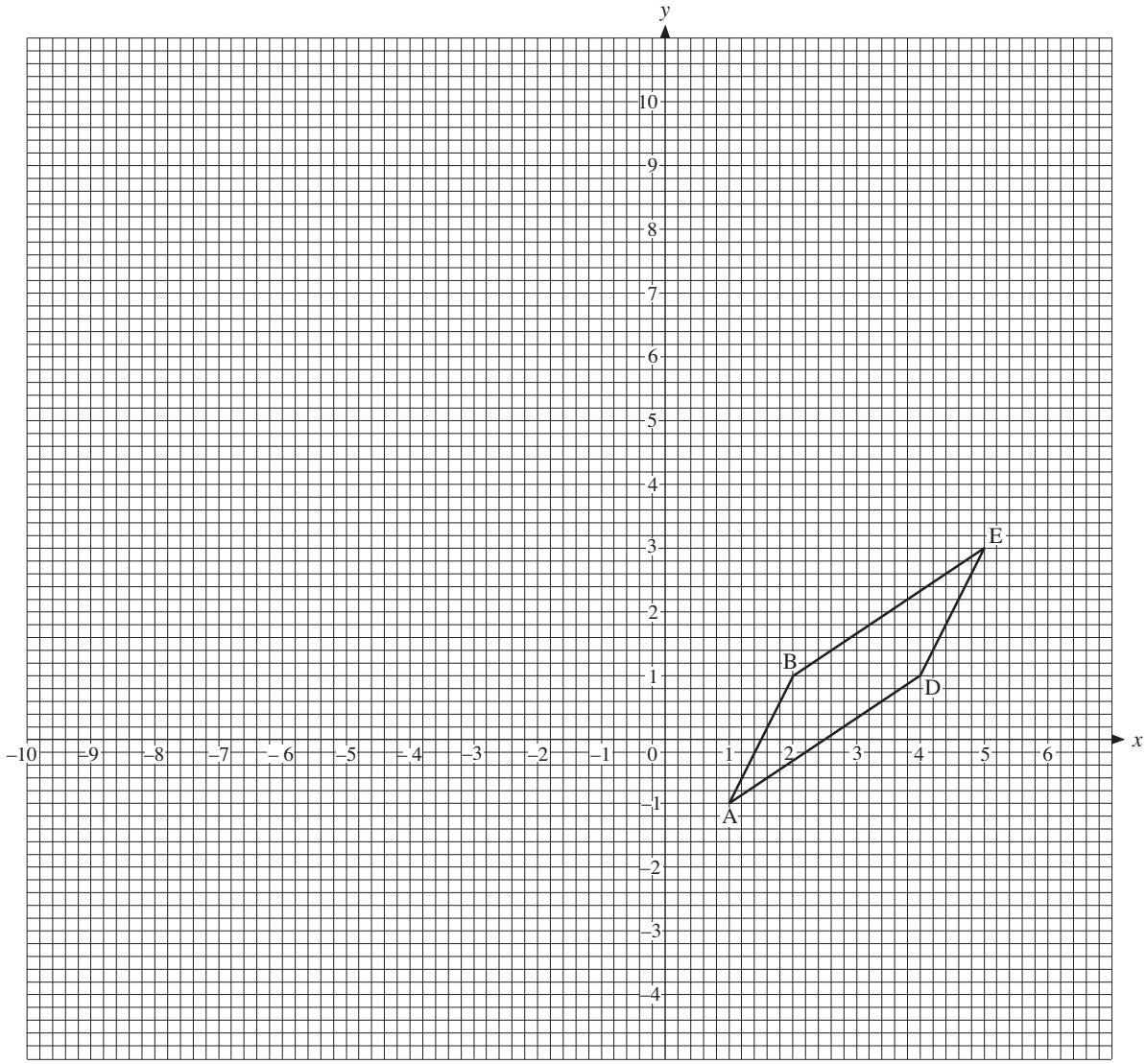
UNIT 36 *Further Transformations* CSEC Revision Test

Axes for Question 7



UNIT 36 *Further Transformations* CSEC Revision Test

8. The diagram shows the position of a parallelogram ABCD.



(a) The parallelogram ABCD is rotated through 180° about B to form a new parallelogram $A_1B\,C_1D_1$. On a copy of the diagram, draw and label the parallelogram $A_1B\,C_1D_1$. *(2 marks)*

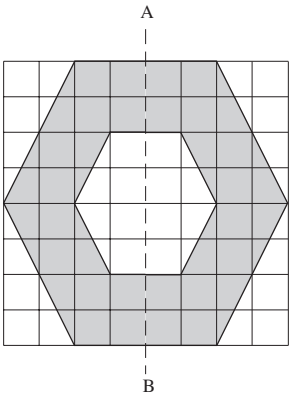
(b) The parallelogram $A_1B\,C_1D$ is enlarged by a scale factor of 3 to form a new parallelogram $A_2B_2C_2D_2$. The centre of the enlargement is (2, 0).

Draw and label the parallelogram $A_2B_2C_2D_2$. *(2 marks)*

(c) Describe a single transformation which would take $A_2B_2C_2D_2$ back onto $A_1B\,C_1D_1$. *(3 marks)*

TOTAL MARKS: 42

UNIT 36 *Further Transformations* CSEC Revision Test Answers

1. 

B2 *(2 marks)*

2. (a) $(-3, 4)$ B2

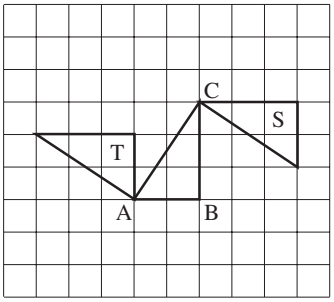
(b) $(-2, 3)$ B2 *(4 marks)*

3. (a) Rotation; anticlockwise through $90°$; about $(-1, 4)$ B1 B1 B1

(b) $(2, -2)$ B2 *(5 marks)*

4. (a) $(1, 4)$ B2

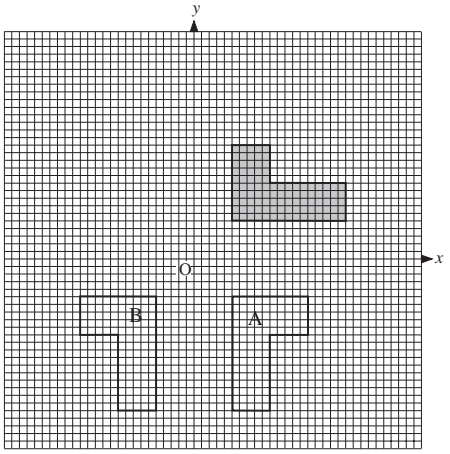
(b) $90°$, anticlockwise B1 B1 *(4 marks)*

5. 

(a) T in diagram B2

(b) S in diagram B2

(c) Translation $\begin{pmatrix} 5 \\ 1 \end{pmatrix}$ B1 B1 *(6 marks)*

6. 

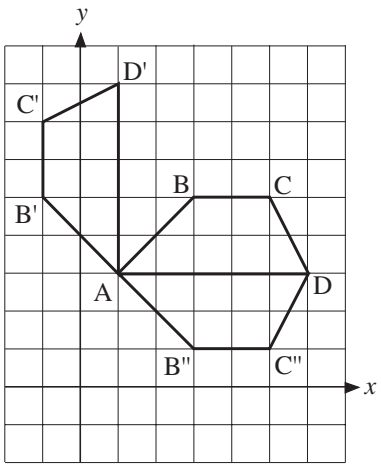
(a) A in diagram B2

(b) B in diagram B2

(c) Reflection in B2
line $y = -x$ B1 *(7 marks)*

UNIT 36 *Further Transformations* CSEC Revision Test Answers

7.

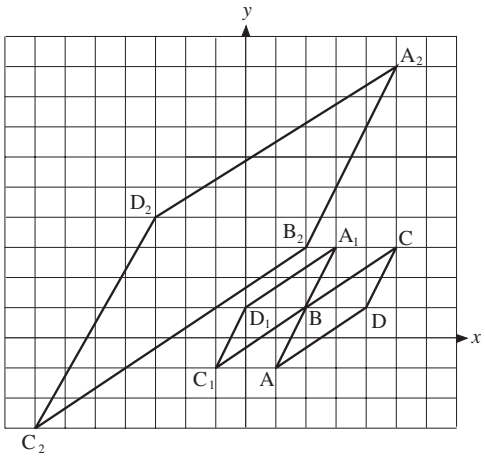


(a) Shape AB'C'D' B2

(b) Shape AB"C"D B2

(c) Reflection in B1
line $y = 2 + x$ B2 *(7 marks)*

8.



(a) Shape $A_1D_1C_1B$ B2

(b) Shape $A_2B_2C_2D_2$ B2

(c) Enlargement, B1
scale factor $\frac{1}{3}$, B1
about $(2, 0)$ B1 *(7 marks)*

(TOTAL MARKS 42)