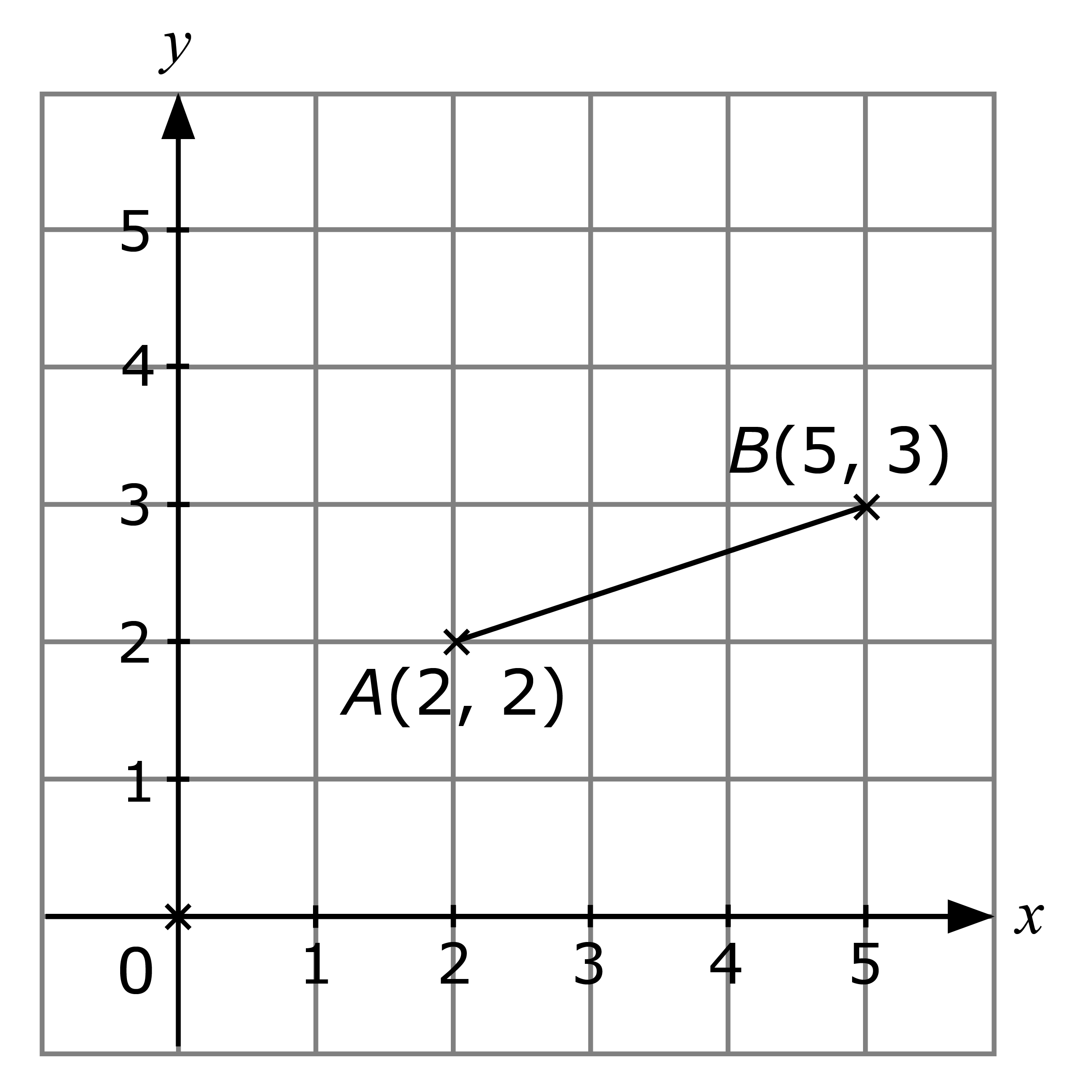
**Further Practice 12.1**

Basic

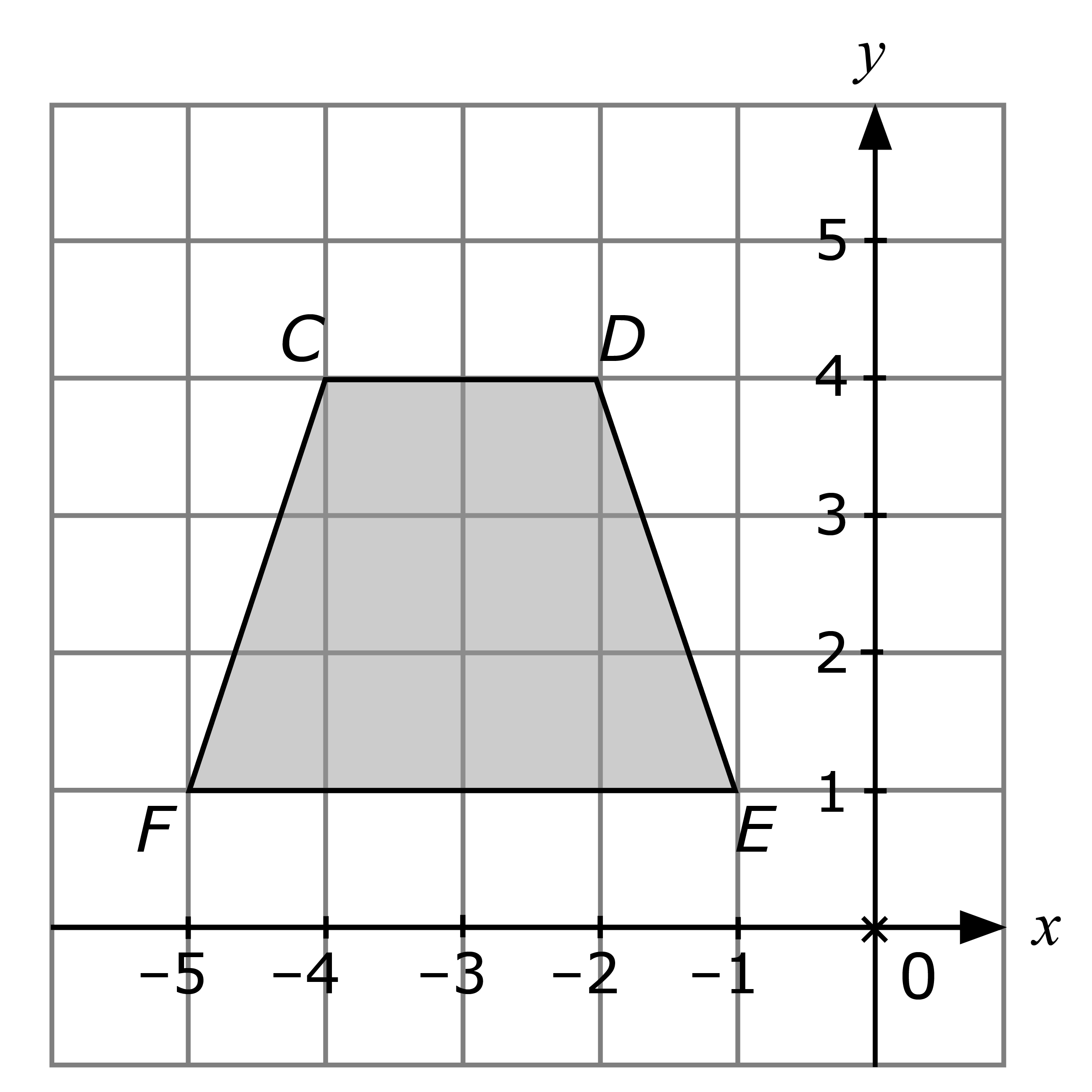
1. Copy the line segment *AB* on a grid paper.

(a) Rotate *AB* 90° anticlockwise about the origin *O*. Draw and label the image *A*1*B*1.

(b) Rotate *AB* 180° about the point *P*(1, 1). Draw and label the image *A*2*B*2.



1. Copy the quadrilateral *CDEF* on a grid paper. Rotate the quadrilateral 90o clockwise about the origin *O*. Draw and label the image *C*1*D*1*E*1*F*1.

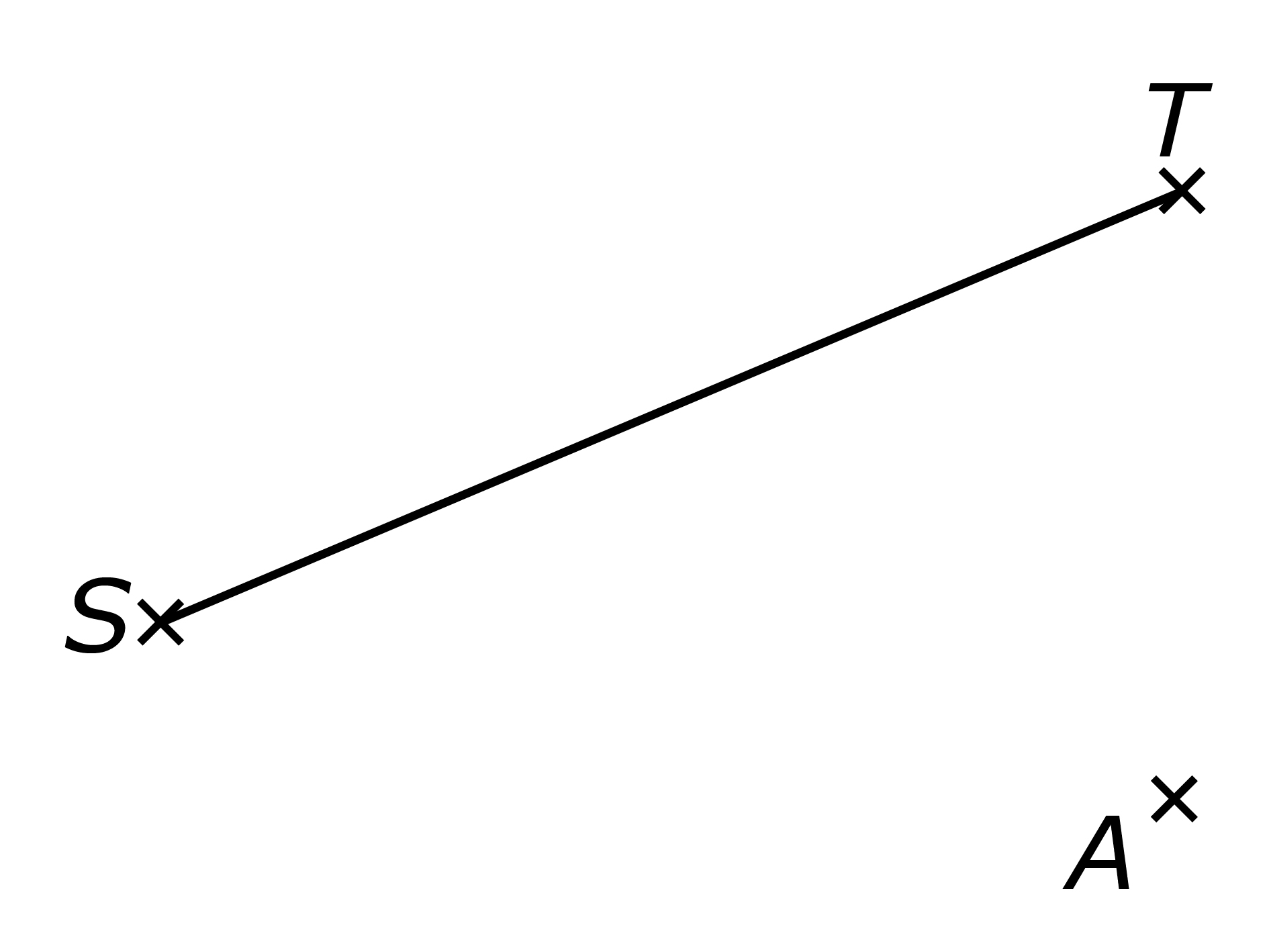
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Intermediate

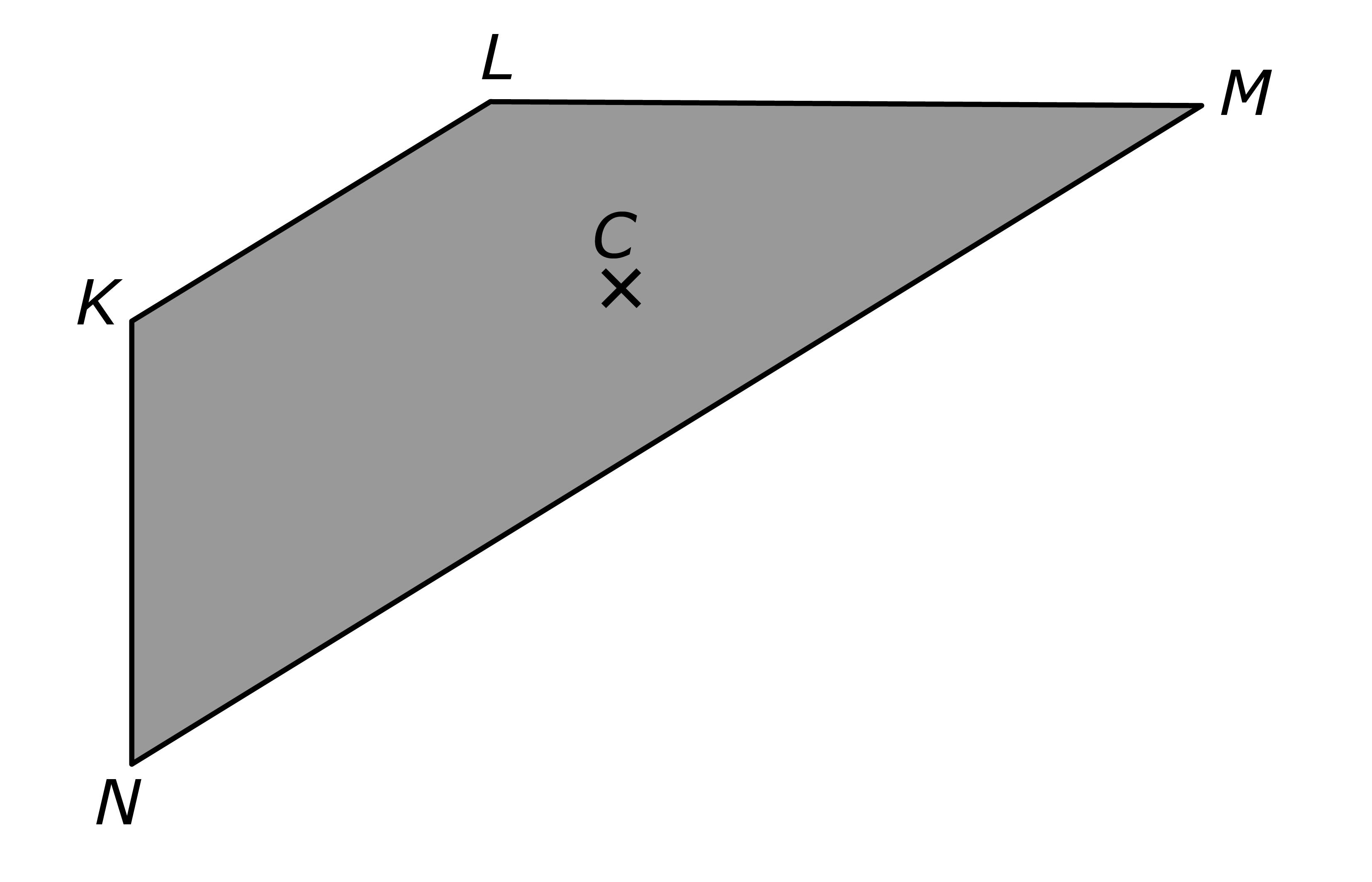
1. The diagram shows a line segment *ST* and a point *A*. Copy the diagram on a piece of plain paper.

(a) Rotate *ST* 90o clockwise about the point *A*. Draw and label the image *S*1*T*1.

(b) Rotate *ST* 180o about the point *A* and label the image *S*2*T*2.

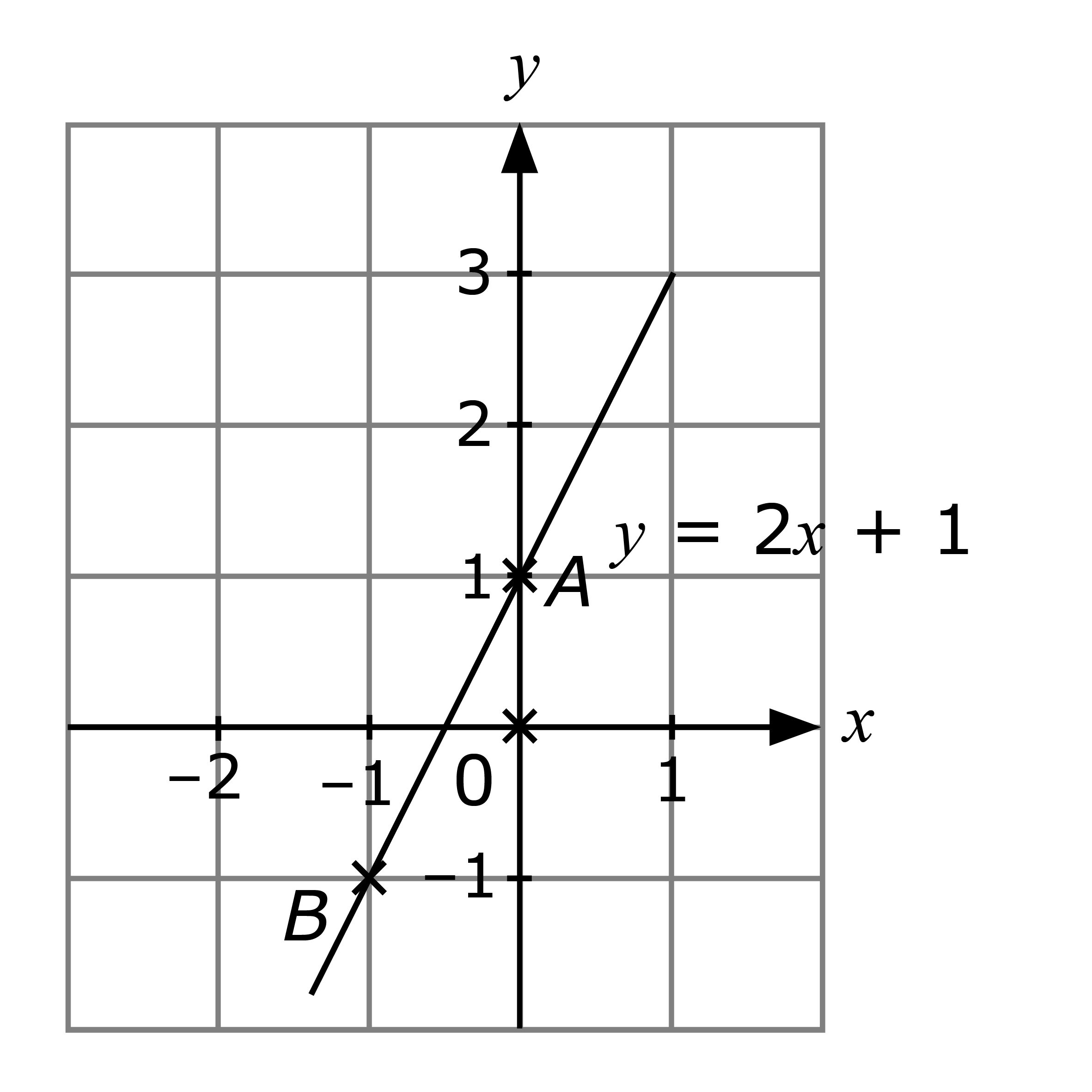


1. The diagram shows a quadrilateral *KLMN* and a point *C*. The quadrilateral is rotated 90o anticlockwise about the point *C*. Copy the diagram on a piece of plain paper and draw the image *K*1*L*1*M*1*N*1.



Challenging

1. The diagram below shows a segment of the line *y* = 2*x* + 1. Copy the line on a grid paper.



(a) On separate grids, draw the image of the line given that

(i) the line is rotated 90o anticlockwise about the origin *O*,

(ii) the line is rotated 90o clockwise about the point *A*,

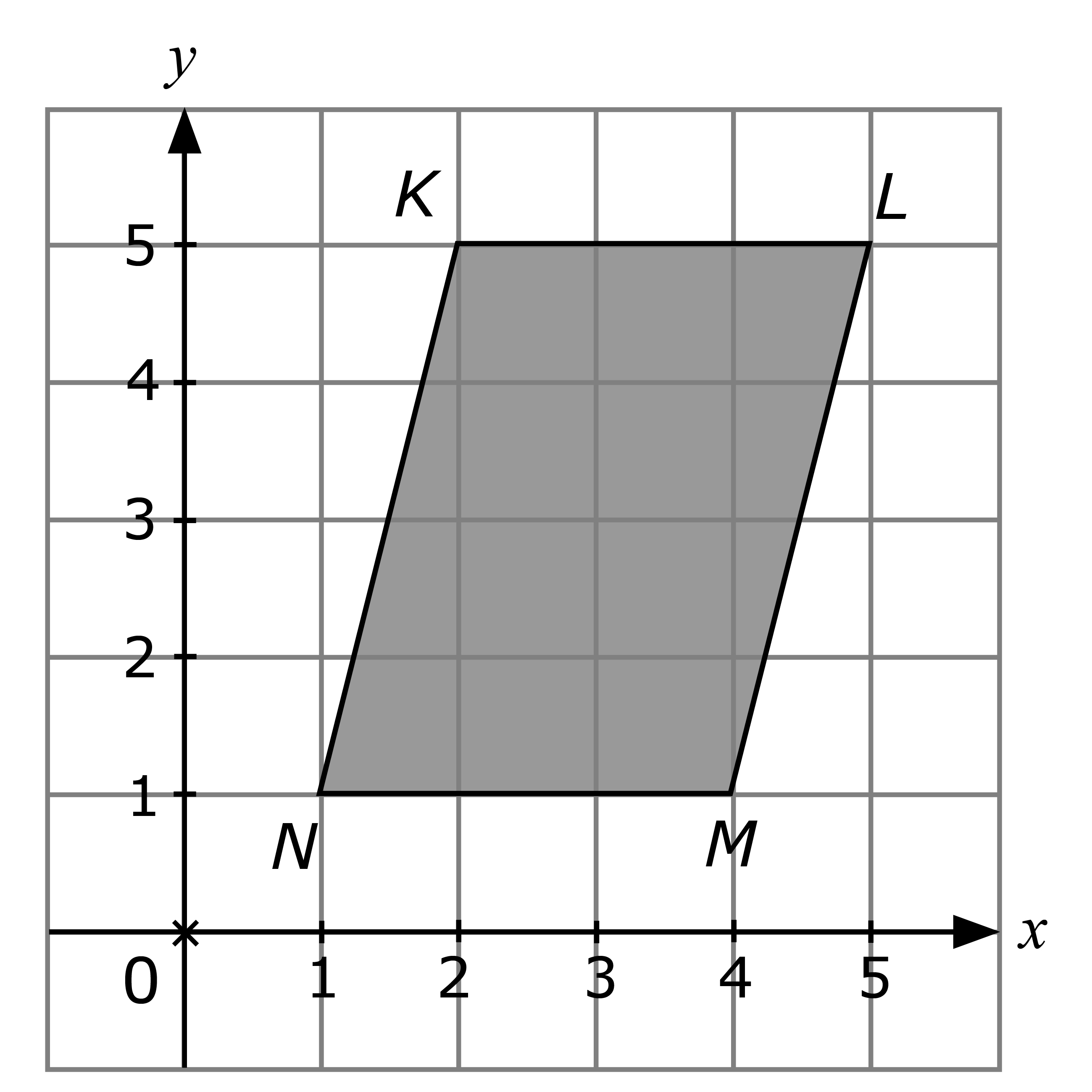
(iii) the line is rotated 90o clockwise about the point *B*.

(b) Find the equation of each line in parts (i) to (iii).

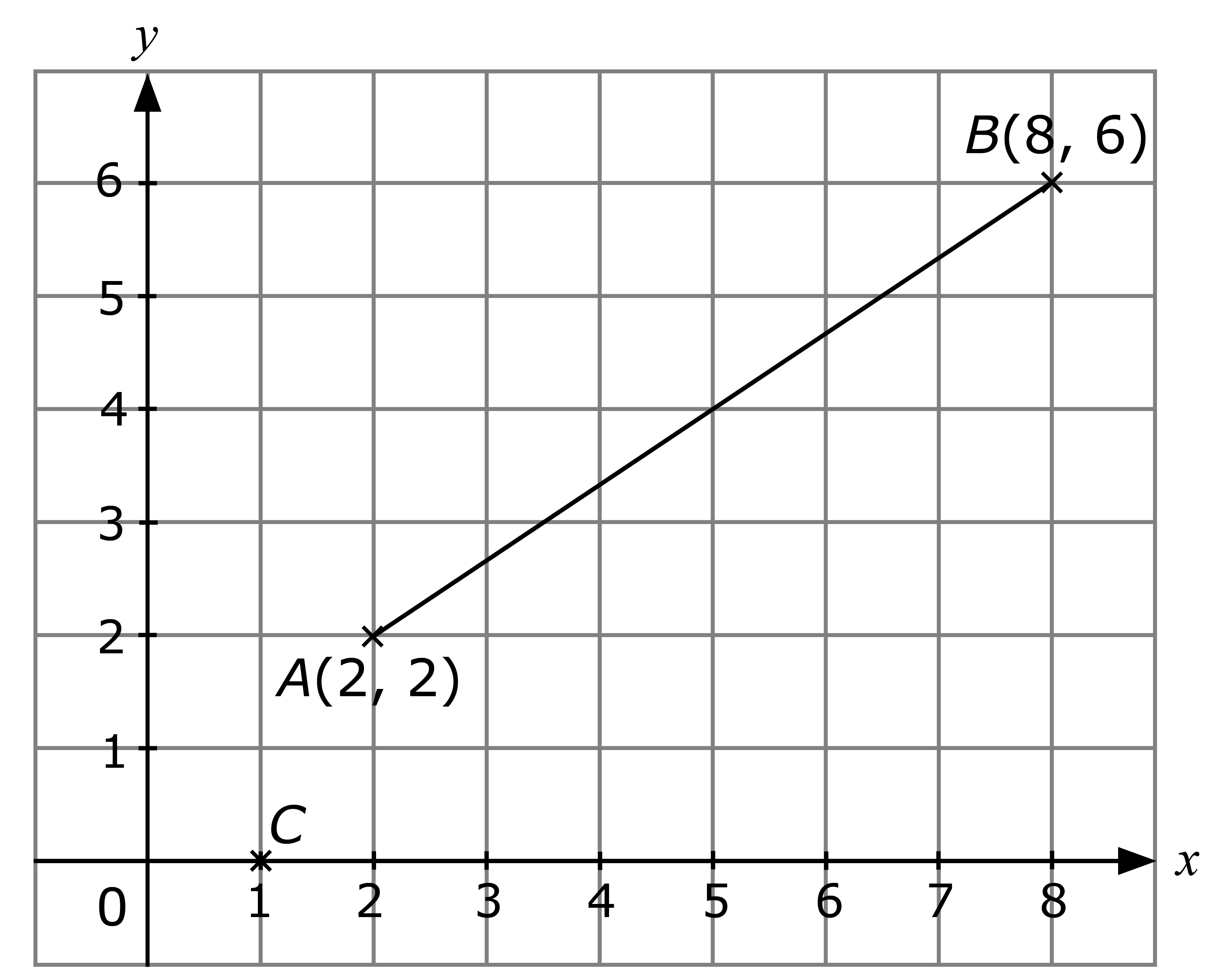
**Further Practice 12.2**

Basic

1. Copy the quadrilateral *KLMN* on a grid paper. Enlarge the quadrilateral with scale factor 3 and centre *O*(0, 0). Draw and label the image *K*1*L*1*M*1*N*1.



1. Copy the line segment *AB* on a grid paper. Enlarge the line segment with scale factor 0.5 and centre *C*(1, 0). Draw and label the image *A*1*B*1.

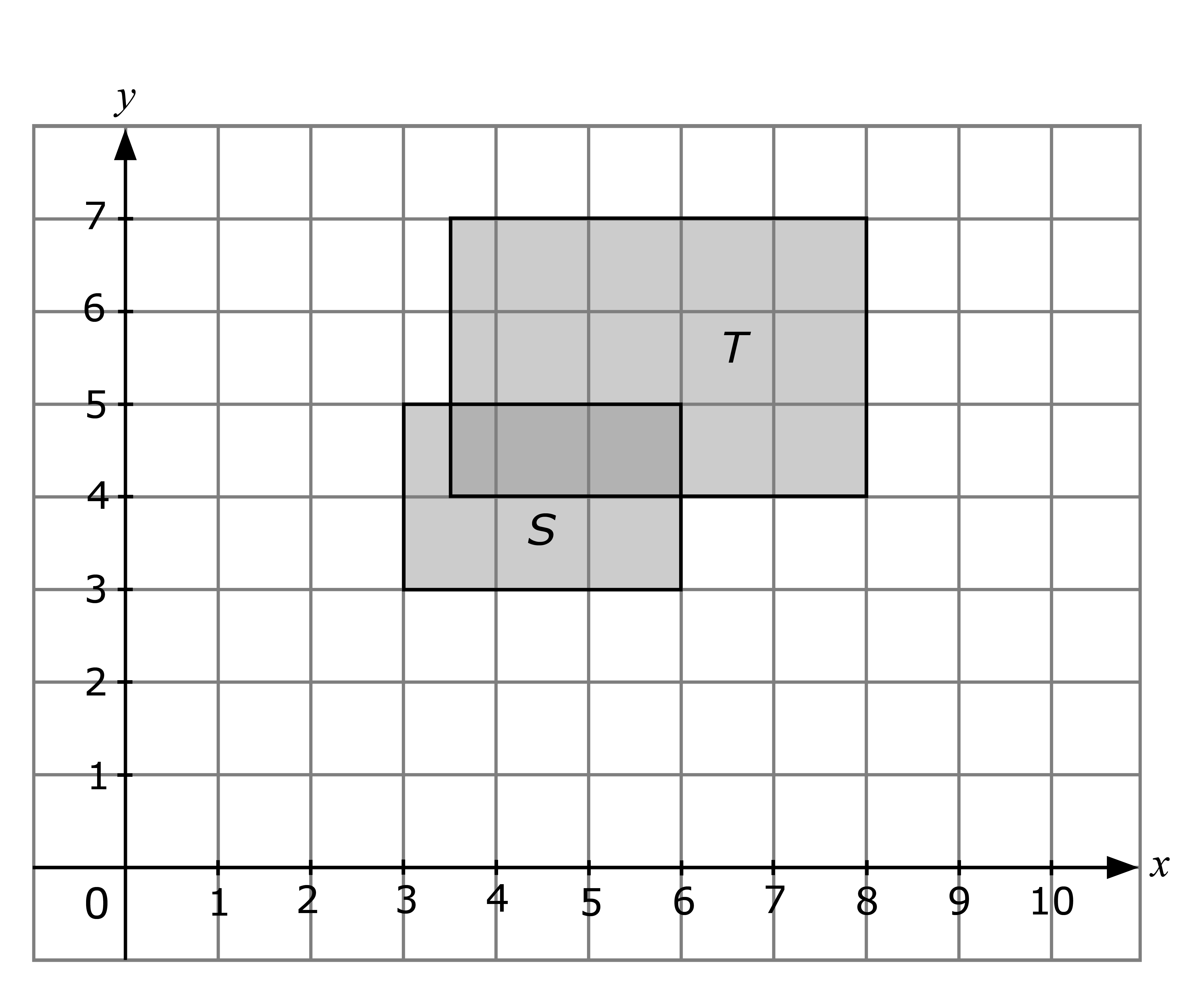


Intermediate

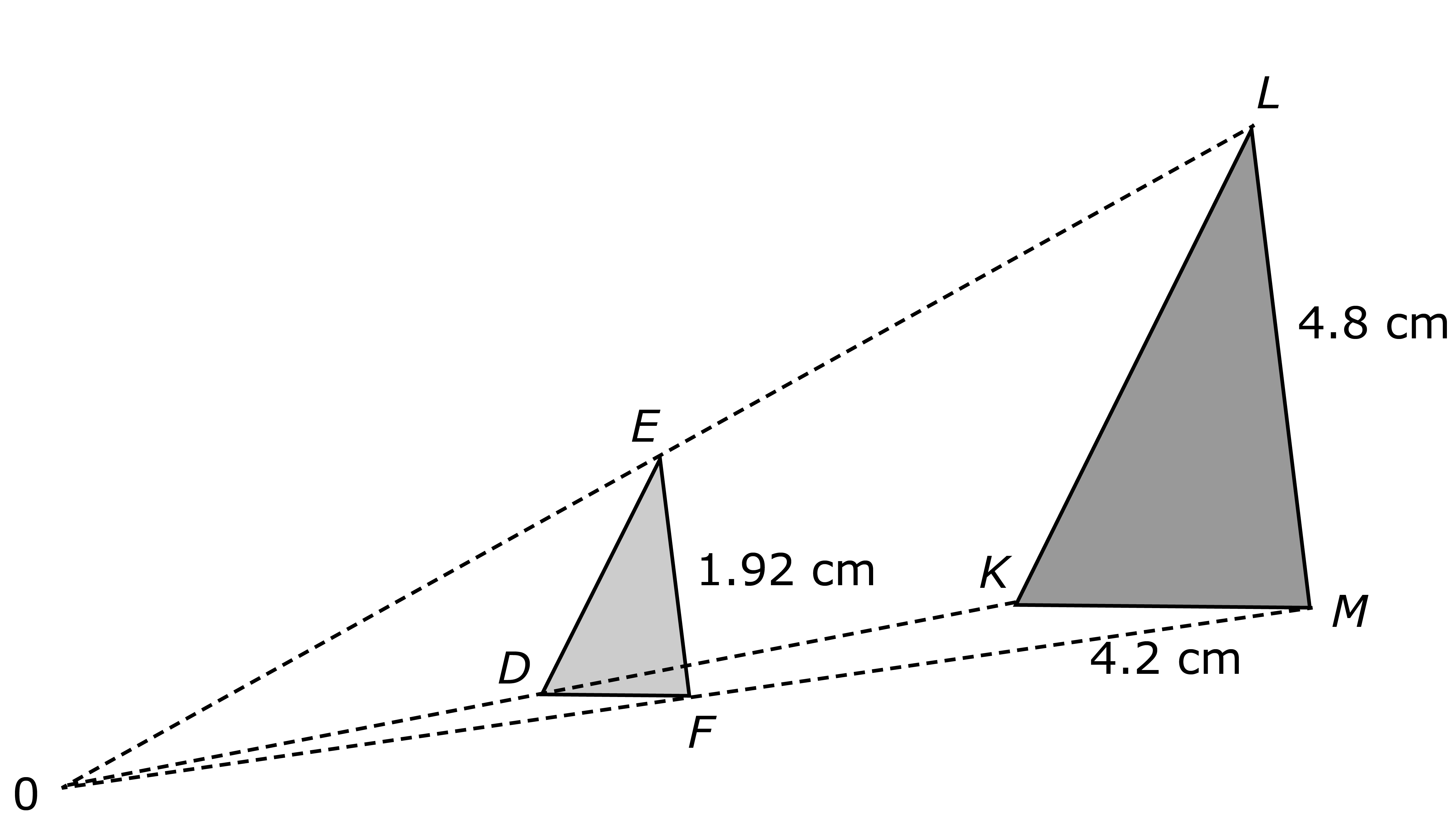
1. In the diagram, rectangle *S* can be mapped onto rectangle *T* by an enlargement. Find

(a) the coordinates of the centre of enlargement,

(b) the scale factor.



1. The triangles *DEF* and *KLM* are such that *DE*, *EF* and *DF* are parallel to *KL*, *LM* and *KM* respectively. *LM* = 4.8 cm, *KM* = 4.2 cm and *EF* = 1.92 cm.



Find

(a) the value of ,

(b) the length of *DF*,

(c) the perimeter of *DEF* given that the perimeter of *KLM* is 14.6 cm.

Challenging

1. Mr Aziz wants to paint a large rectangle on a wall. This large rectangle is an enlargement of another rectangle of dimensions 5 cm by 3 cm, with a scale factor of 11. However, he has 3 tins of paint only. Each tin can paint 470 cm2 of wall. By some estimation, Mr Aziz knows that the 3 tins of paint are not enough for his painting work.

(a) By what whole number should Mr Aziz reduce the scale factor of enlargement?

(b) If it costs $1.24 to paint 10 cm2 of wall, how much will Mr Aziz save after reducing the scale factor of enlargement?