



**Example**

- (a)  $\Delta 1 \rightarrow \Delta 2$ : enlargement, scale factor 2, centre (3, 1).
- (b)  $\Delta 1 \rightarrow \Delta 3$ : reflection in the line  $y = -1$ .
- (c)  $\Delta 1 \rightarrow \Delta 4$ : translation  $\begin{pmatrix} -6 \\ -5 \end{pmatrix}$ .
- (d)  $\Delta 1 \rightarrow \Delta 5$ : rotation,  $90^\circ$  clockwise, centre (0, -2).

**Exercise**

For each question draw a set of axes for  $x$  and  $y$  from  $-8$  to  $+8$ .

1. Plot and label the following triangles:

- $\Delta 1$ : (1, 3) (1, 7) (3, 7)
- $\Delta 2$ : (7, 3) (7, 7) (5, 7)
- $\Delta 3$ : (1, -1) (1, -5) (3, -5)
- $\Delta 4$ : (-3, 3) (-3, 7) (-5, 7)
- $\Delta 5$ : (3, 1) (7, 1) (7, 3)

Write down the equation of the mirror-line for the following reflections

- (a)  $\Delta 1 \rightarrow \Delta 2$                       (b)  $\Delta 1 \rightarrow \Delta 3$
- (c)  $\Delta 1 \rightarrow \Delta 4$                       (d)  $\Delta 1 \rightarrow \Delta 5$

2. Plot and label the following triangles:

- $\Delta 1$ : (-3, 3) (-3, 7) (-1, 7)
- $\Delta 2$ : (3, 7) (7, 7) (7, 5)
- $\Delta 3$ : (-3, -7) (-7, -7) (-7, -5)
- $\Delta 4$ : (3, -3) (3, -7) (1, -7)
- $\Delta 5$ : (-3, 3) (-7, 3) (-7, 5)

Describe fully the following rotations:

- (a)  $\Delta 1 \rightarrow \Delta 2$                       (b)  $\Delta 1 \rightarrow \Delta 3$
- (c)  $\Delta 1 \rightarrow \Delta 4$                       (d)  $\Delta 1 \rightarrow \Delta 5$
- (e)  $\Delta 3 \rightarrow \Delta 2$                       (f)  $\Delta 4 \rightarrow \Delta 2$
- (g)  $\Delta 5 \rightarrow \Delta 2$

3. Plot and label the following triangles:

- $\Delta 1$ : (-5, 5) (-5, 7) (-4, 7)
- $\Delta 2$ : (-2, -4) (-2, 4) (2, 4)
- $\Delta 3$ : (3, 2) (3, 6) (5, 6)
- $\Delta 4$ : (2, -6) (2, -2) (4, -2)

Describe fully the following enlargements:

- (a)  $\Delta 1 \rightarrow \Delta 2$                       (b)  $\Delta 2 \rightarrow \Delta 3$
- (c)  $\Delta 2 \rightarrow \Delta 4$

4. Use the diagram below to describe the following translations:



- (a)  $\Delta 1 \rightarrow \Delta 5$                       (b)  $\Delta 1 \rightarrow \Delta 4$
- (c)  $\Delta 4 \rightarrow \Delta 5$                       (d)  $\Delta 3 \rightarrow \Delta 1$
- (e)  $\Delta 2 \rightarrow \Delta 4$                       (f)  $\Delta 1 \rightarrow \Delta 6$
- (g)  $\Delta 3 \rightarrow \Delta 4$                       (h)  $\Delta 6 \rightarrow \Delta 5$
- (i)  $\Delta 5 \rightarrow \Delta 3$                       (j)  $\Delta 4 \rightarrow \Delta 3$