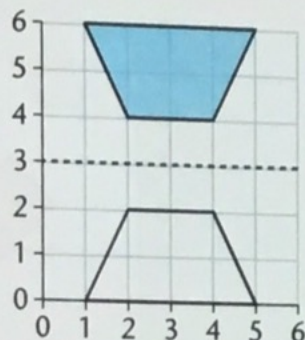


TARGET To reflect a shape on the first quadrant of the co-ordinate grid.

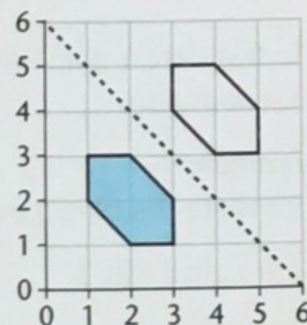
Example

- 1 The blue trapezium is reflected in a mirror line $(0, 3)$ to $(6, 3)$.



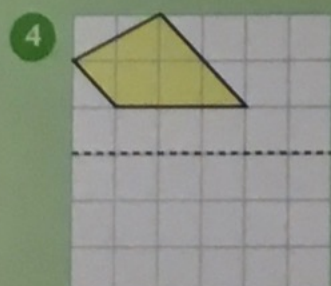
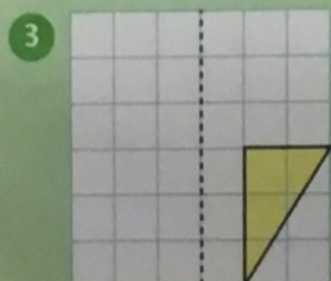
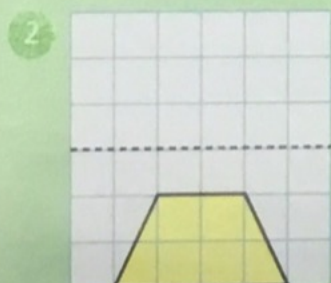
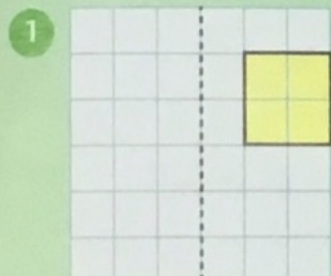
- 2 Reflect the blue hexagon in the mirror line. Give the co-ordinates of the reflection.

Answer $(3, 4)$ $(3, 5)$
 $(4, 5)$ $(5, 4)$ $(5, 3)$ $(4, 3)$



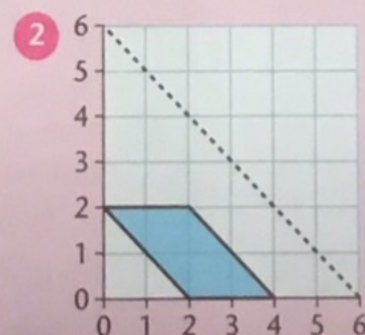
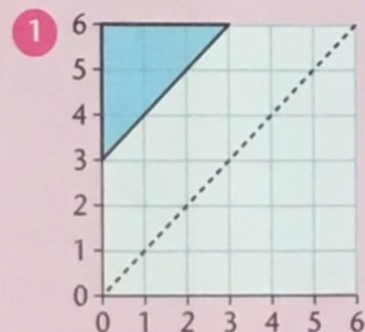
A

Copy the grid, the shape and the mirror line. Sketch the reflection.



B

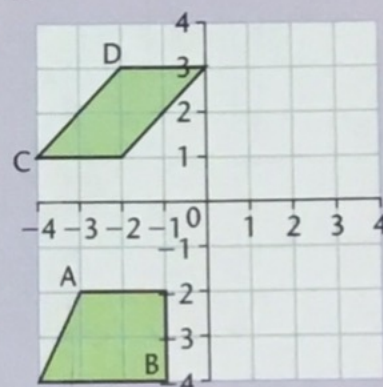
Copy the grid, the shape and the mirror line. Sketch the reflection.



Plot these co-ordinates on a 6×6 grid and join them up in the order given to form a shape. Draw the mirror line and sketch the reflection.

- 3 $(0, 0)$ $(2, 2)$ $(5, 2)$ $(4, 0)$
 $(0, 0)$
 Mirror line $(0, 3)$ to $(6, 3)$
- 4 $(4, 3)$ $(4, 6)$ $(6, 6)$ $(6, 5)$
 $(4, 3)$
 Mirror line $(3, 0)$ to $(3, 6)$

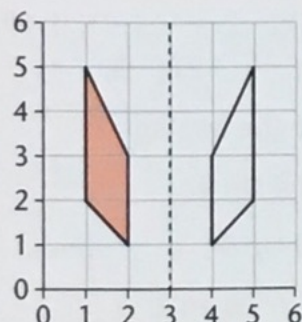
C



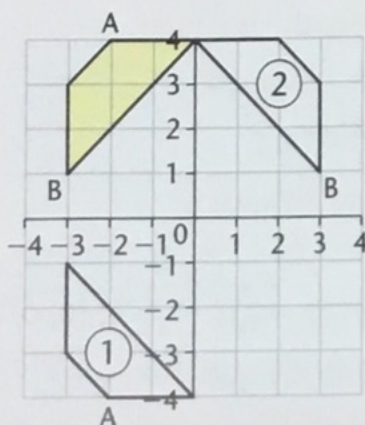
- 1 Copy the above grid and the trapezium. Sketch the reflection:
 a) in the x axis
 b) in the y axis
 c) in a mirror line $(-4, 4)$ to $(4, -4)$
- 2 Copy the above grid and the parallelogram. Sketch the reflection:
 a) in the x axis
 b) in the y axis
 c) in a mirror line $(-4, -4)$ to $(4, 4)$
- 3 For each of the points A–D in the above shapes give the co-ordinates of its position:
 a) in the original shape
 b) in each reflection.

TARGET To reflect shapes on the co-ordinate plane.

Examples



The orange shape is reflected in a mirror line (3, 0) to (3, 6).



The yellow trapezium is reflected:

- 1 in the x axis
- 2 in the y axis.

Each point in the reflected shape matches a point in the original shape.

Matching points are an equal distance from the mirror line.

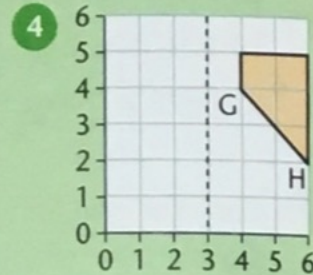
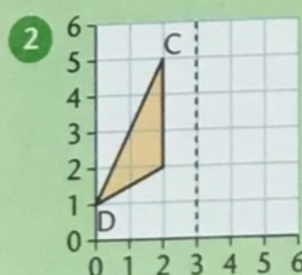
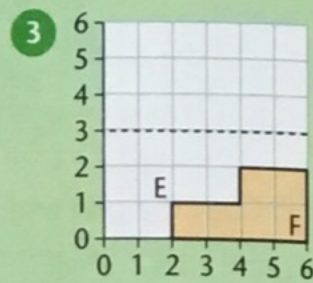
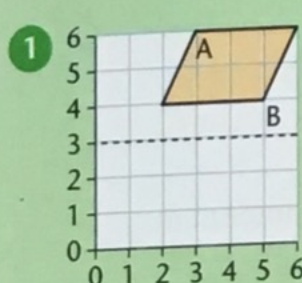
For example, look at the yellow trapezium.

A (-2, 4) becomes (-2, -4) in reflection ①.

B (-3, 1) becomes (3, 1) in reflection ②.

A

Copy the grid, the shape and the mirror line. Sketch the reflection.



- 5 Give the co-ordinates of points A-H:
 - a) in the above shapes
 - b) in the reflected shapes.

Plot the co-ordinates for each of the following on a 6×6 grid and join them up in the order given to form a shape. Draw the mirror line and sketch the reflection.

- 6 (3, 0) (1, 2) (5, 2) (3, 0)
Mirror line (0, 3) to (6, 3)

- 7 (4, 2) (4, 4) (6, 2) (6, 0) (4, 2)
Mirror line (3, 0) to (3, 6)

- 8 (0, 6) (4, 6) (3, 4) (1, 4) (0, 6)
Mirror line (0, 3) to (6, 3)

- 9 (0, 2) (0, 3) (1, 4) (2, 4) (2, 1) (1, 1) (0, 2)
Mirror line (3, 0) to (3, 6)

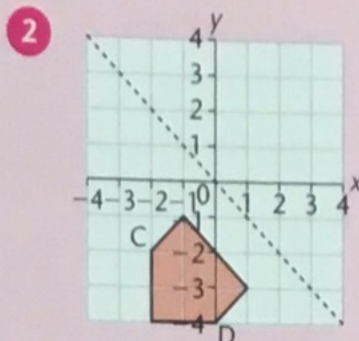
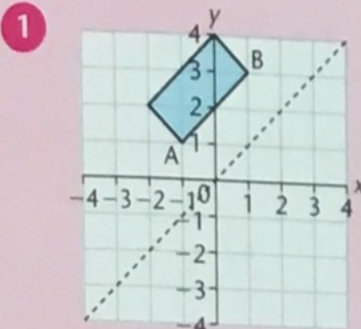
- 10 (3, 4) (1, 4) (2, 6) (3, 6)

Plot the above co-ordinates and join them up in the order given to form one half of a symmetrical trapezium. Complete the shape and draw its reflection in a mirror line (0, 3) to (6, 3).

B

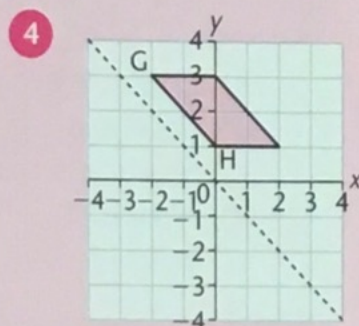
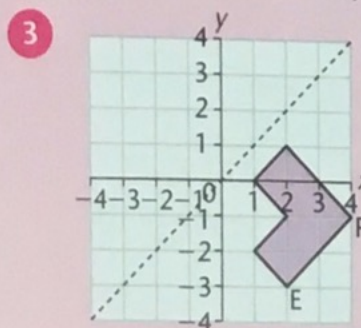
Copy the grid, the shape and the mirror line.
Sketch the reflection:

- a) in the mirror line b) in the x axis.



Copy the grid, the shape and the mirror line.
Sketch the reflection:

- a) in the mirror line b) in the y axis.



- 5 Give the co-ordinates of point A–H:
a) in the above shape
b) in the reflection in the mirror line
c) in the reflection in the x or y axis.

Draw an 8×8 grid with both axes labelled -4 to 4 as above.

Plot the points and join them up in the order given to form a shape.

Draw the mirror line and sketch the reflection:

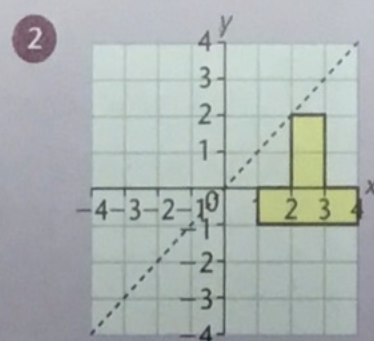
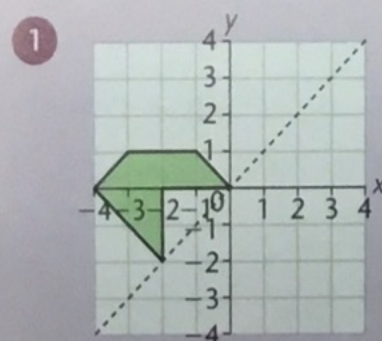
- a) in the mirror line
b) in the x axis.

- 6 $(-2, -4) (1, -1) (1, -3)$
 $(0, -4) (-2, -4)$
Mirror line $(-4, -4)$ to $(4, 4)$
- 7 $(1, 1) (-1, 3) (1, 3) (2, 4)$
 $(4, 4) (1, 1)$
Mirror line $(-4, 4)$ to $(4, -4)$

C

Copy the grid, the shape and the mirror line.
Sketch the reflection:

- a) in the mirror line
b) in the y axis.



For each of the following draw an 8×8 grid with both axes labelled -4 to 4 as above. Plot the points and join them up in the order given to form a shape. Draw the mirror line and sketch the reflection:

- a) in the mirror line
b) in the axis indicated.

- 5 $(2, 0) (-1, 2) (2, 4) (1, 2) (2, 0)$
a) Mirror line $(-4, 4)$ to $(4, -4)$
b) x axis.
- 6 $(0, -2) (-1, -2) (-1, -1) (2, -1)$
 $(2, -4) (1, -4) (1, -3) (0, -3) (0, -2)$
a) Mirror line $(-4, -4)$ to $(4, 4)$
b) x axis.
- 7 $(-4, 0) (-3, 0) (-3, 1) (-1, 1)$
 $(-1, -1) (-2, -1) (-2, -2) (-4, 0)$
a) Mirror line $(-4, 4)$ to $(4, -4)$
b) y axis.
- 8 $(-1, 2) (-1, -1) (-4, -1) (-3, 0)$
 $(-4, 1) (-3, 2) (-2, 1) (-1, 2)$
a) Mirror line $(-4, -4)$ to $(4, 4)$
b) y axis.

- 3 Give the co-ordinates of the reflection of the hexagon:

- a) in the mirror line
b) in the y axis.

- 4 Give the co-ordinates of the reflection of the octagon:

- a) in the mirror line
b) in the y axis.