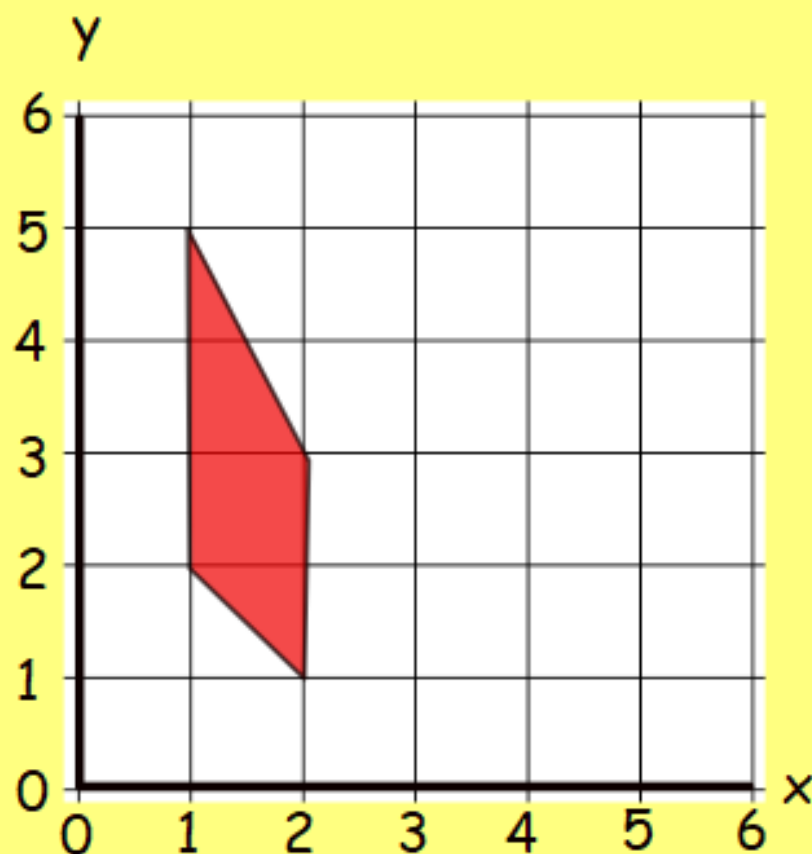


  
Thursday

## L.O. Refelct shapes on a co-ordinate grid.

### Top Tips?



Reflect the shape in the mirror line  
(3, 0) to (3, 6).

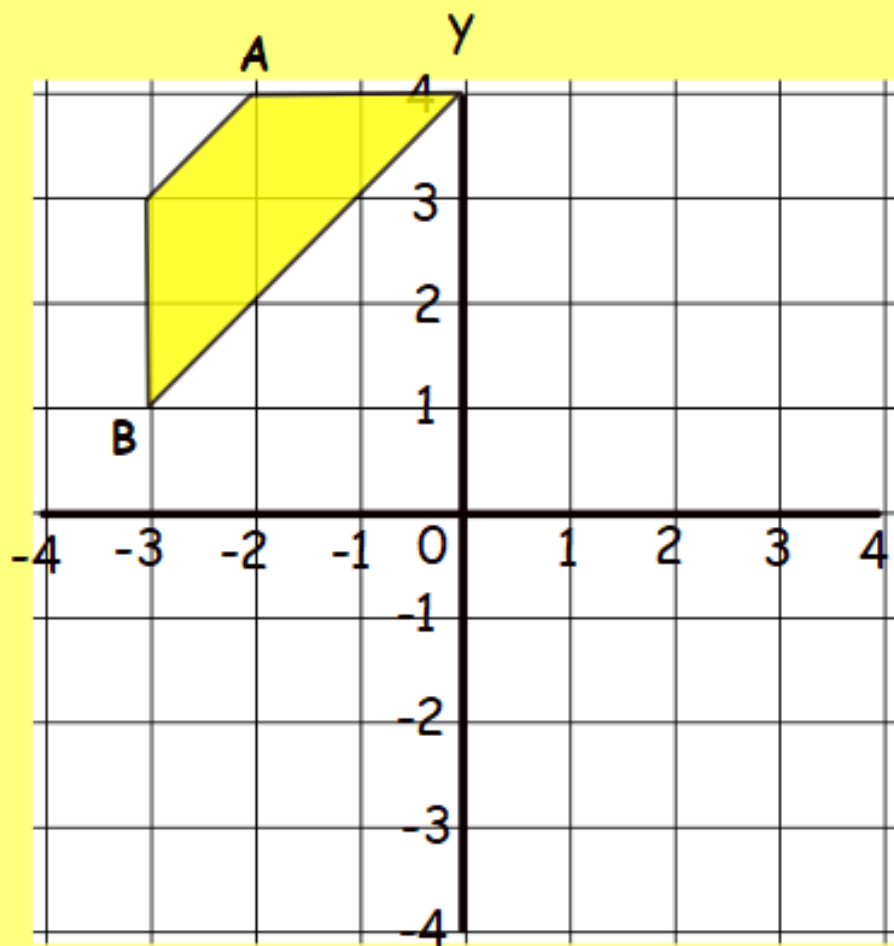
What are the co-ordinates of the reflected  
shape? Do you notice anything about the  
c-ordinates of the reflected shape?

What do you notice about the reflected  
shape and the original shape?

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

Matching points are an equal distance from  
the mirror line.

## L.O. Reflect shapes on a co-ordinate grid.



Reflect the yellow trapezium

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

What are the co-ordinates of the reflected shapes?

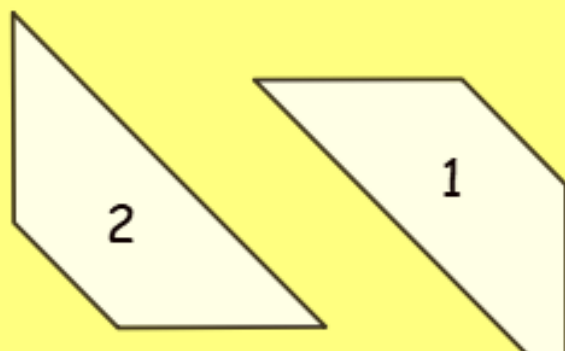
Each point in the reflected shape matches a point in the original shape.

Matching points are an equal distance from the mirror line.

For example, look at the yellow trapezium.

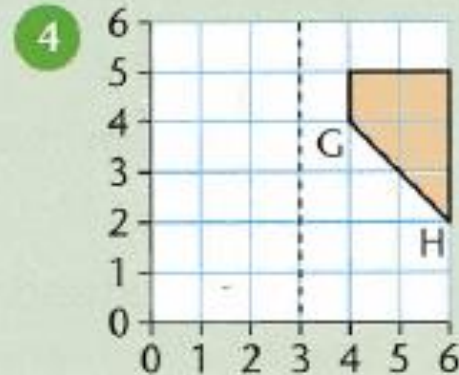
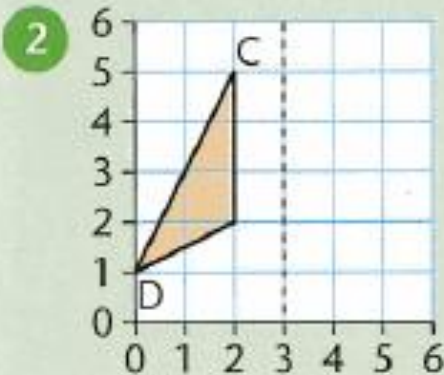
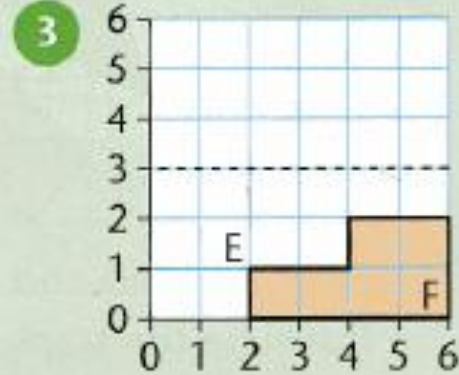
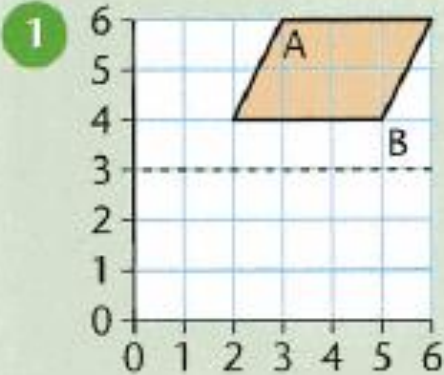
A  $(-2, 4)$  becomes  $(2, 4)$  in reflection 1.

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  $6 \times 6$  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).

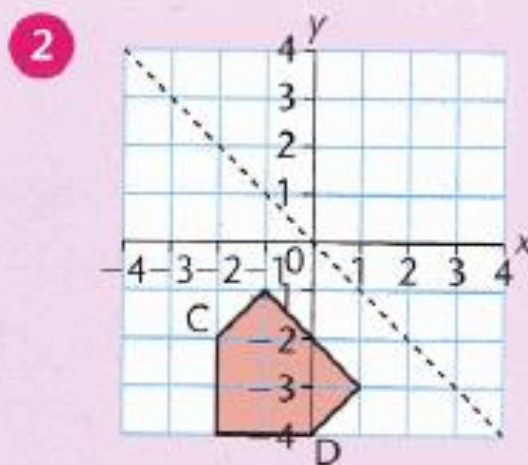
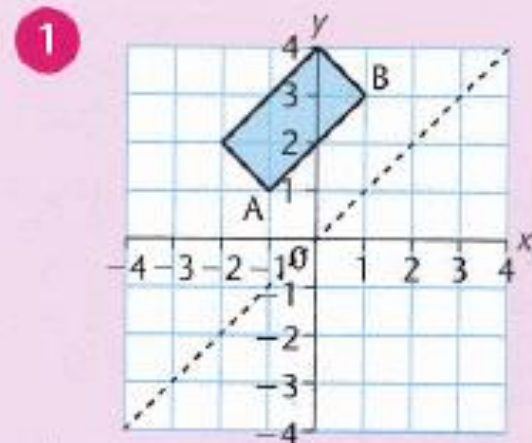


**B**

Copy the grid, the shape and the mirror line.

Sketch the reflection:

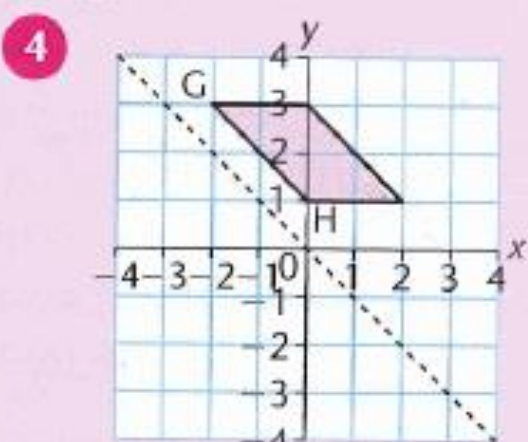
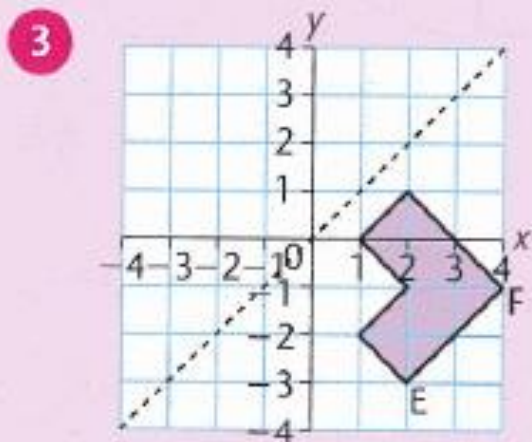
- a) in the mirror line    b) in the  $x$  axis.



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  $8 \times 8$  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.

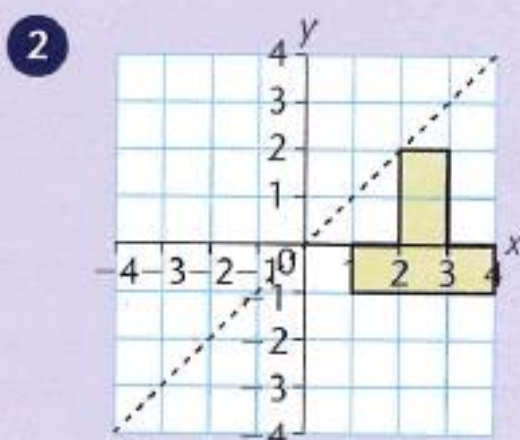
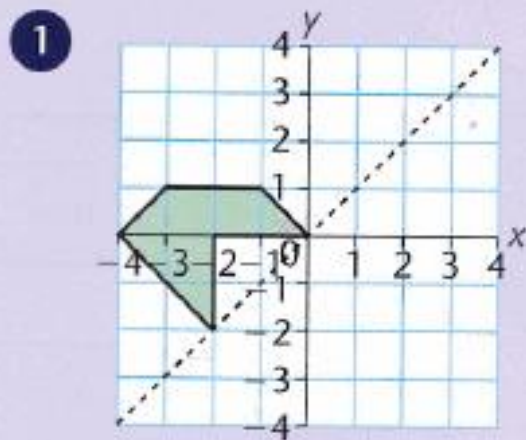
- 6  $(-2, -4)$   $(1, -1)$   $(1, -3)$   
 $(0, -4)$   $(-2, -4)$   
Mirror line  $(-4, -4)$  to  $(4, 4)$

- 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.



- 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.

For each of the following draw an  $8 \times 8$  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.

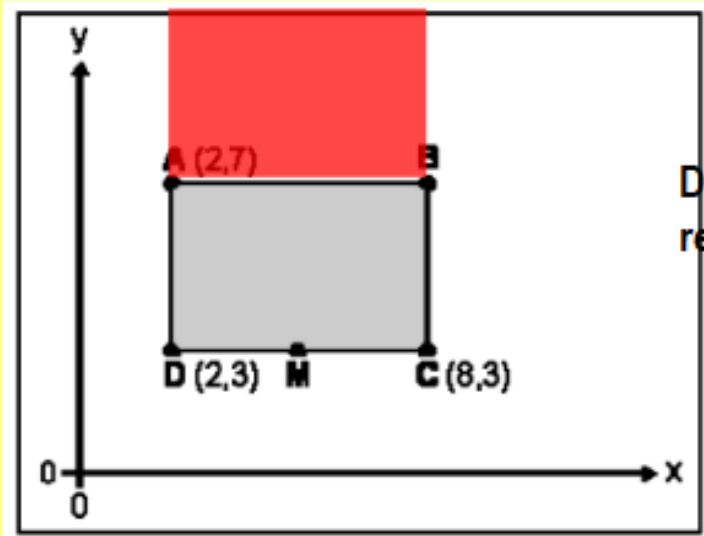
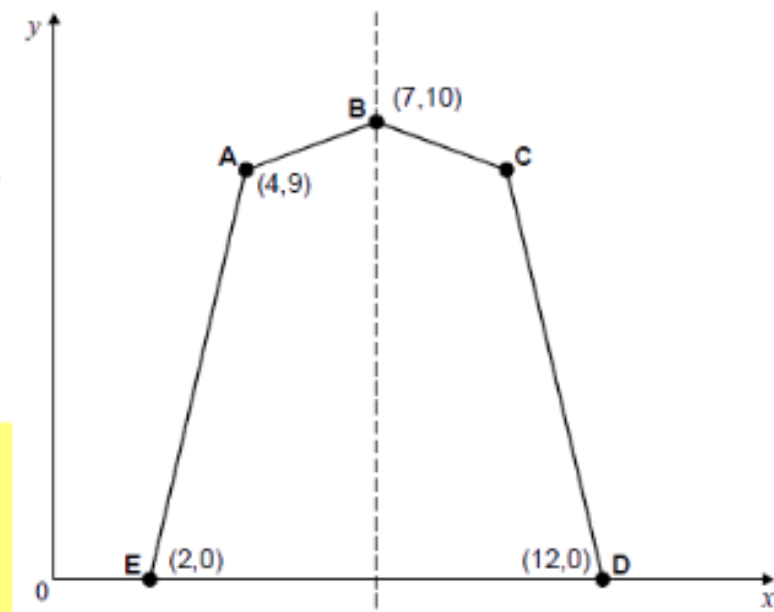
Here is a pentagon drawn on a coordinate grid.

The pentagon is symmetrical.

Explain how you would work out the coordinates of point **C**?

What if the shape was reflected in the **y** axis.

What would the coordinates of point A be?



Draw this shape and the axes. What would the coordinates of reflected shapes be? Why?



# ANSWERS

Page 136

**A**

- |                      |                  |
|----------------------|------------------|
| <b>5 A a)</b> (3, 6) | <b>b)</b> (3, 0) |
| <b>B a)</b> (5, 4)   | <b>b)</b> (5, 2) |
| <b>C a)</b> (2, 5)   | <b>b)</b> (4, 5) |
| <b>D a)</b> (0, 1)   | <b>b)</b> (6, 1) |
| <b>E a)</b> (2, 1)   | <b>b)</b> (2, 5) |
| <b>F a)</b> (6, 0)   | <b>b)</b> (6, 6) |
| <b>G a)</b> (4, 4)   | <b>b)</b> (2, 4) |
| <b>H a)</b> (6, 2)   | <b>b)</b> (0, 2) |

Page 137

**B**

- |                       |                   |                    |
|-----------------------|-------------------|--------------------|
| <b>5 A a)</b> (-1, 1) | <b>b)</b> (1, -1) | <b>c)</b> (-1, -1) |
| <b>B a)</b> (1, 3)    | <b>b)</b> (3, 1)  | <b>c)</b> (1, -3)  |
| <b>C a)</b> (-2, -2)  | <b>b)</b> (2, 2)  | <b>c)</b> (-2, 2)  |
| <b>D a)</b> (0, -4)   | <b>b)</b> (4, 0)  | <b>c)</b> (0, 4)   |
| <b>E a)</b> (2, -3)   | <b>b)</b> (-3, 2) | <b>c)</b> (-2, -3) |
| <b>F a)</b> (4, -1)   | <b>b)</b> (-1, 4) | <b>c)</b> (-4, -1) |
| <b>G a)</b> (-2, 3)   | <b>b)</b> (-3, 2) | <b>c)</b> (2, -3)  |
| <b>H a)</b> (0, 1)    | <b>b)</b> (-1, 0) | <b>c)</b> (0, -1)  |

**C**

- |                      |                   |                     |                    |
|----------------------|-------------------|---------------------|--------------------|
| <b>3 a)</b> (-2, -2) | <b>b)</b> (2, -2) | <b>4 a)</b> (-1, 1) | <b>b)</b> (-1, -1) |
| (0, -4)              | (4, 0)            | (0, 1)              | (-1, 0)            |
| (1, -3)              | (3, 1)            | (0, 2)              | (-2, 0)            |
| (1, -1)              | (1, 1)            | (2, 2)              | (-2, 2)            |
| (0, 0)               | (0, 0)            | (2, 3)              | (-3, 2)            |
| (0, -2)              | (2, 0)            | (0, 3)              | (-3, 0)            |
|                      |                   | (0, 4)              | (-4, 0)            |
|                      |                   | (-1, 4)             | (-4, -1)           |

Page 138

**C**

- 1 a)** cr  
cu  
ic  
P  
**3** fictio  
non  
chil  
refe

Page 14

**A**

- 1 a)**  
**b)**  
**c)**  
**d)**  
**3** 20  
**4** 1

Page

**B**