

Canonbury Home Learning

**Year 6 Maths**

**Developing activity**

**Lesson 2**

**LO: TBAT reflect shapes.**


**Success Criteria:**

- |   |
|---|
| 1. Copy the graph.  |
| 2. Write the shapes coordinates.                              |
| 3. Draw and write the new coordinates of the reflected shape. |

**Model**

**Reflect / Reflection**

A shape is reflected about a line when it is flipped over a mirror line.




Every point of the shape is the same distance from the mirror line as the same point on the reflected shape.

**Axis / Axes**

A coordinate grid has axes. **y**

The x axis is horizontal.

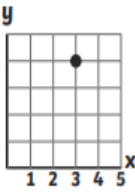
The y axis is vertical.



**Coordinates**

Coordinates mark the location of a point on a coordinate grid.

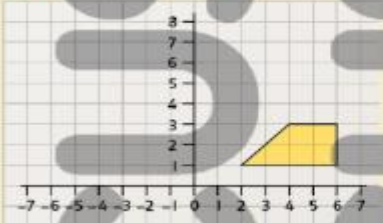
The coordinates are written in brackets in the format (x,y) where x is how far along and y is how far up.



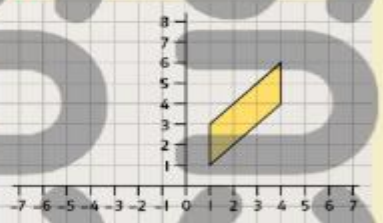
**Now you try...**

Copy the graph and shape. Write the shape's coordinates and reflect it in the y-axis. Write the new coordinates. Repeat this for each graph.

1

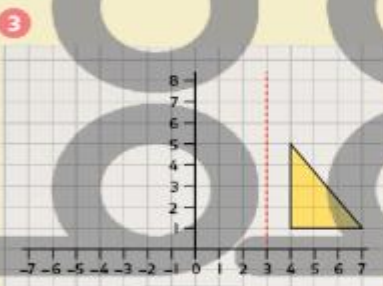


2

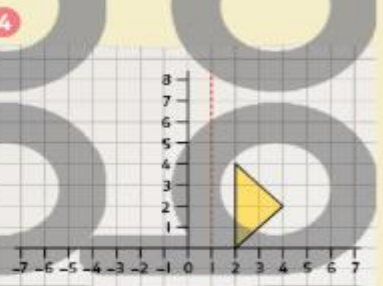


Copy the graph, shape and line. Write the coordinates of the shape. Draw a reflection of the triangle in the line. Write the new coordinates. Repeat this for each graph.

3



4



Canonbury Home Learning

**Year 6 Maths**

**Expected/ Greater depth activity**

**Lesson 2**

**LO: TBAT solve problems including reflection.**

**Task:**

You are going apply your knowledge to solve several problems including reflecting shapes.

**Success Criteria:**

1. Revise your knowledge reflection.
2. Draw the grids and shapes.
3. Reflect in the correct quadrant, writing the new coordinates.

**Recap:**

### Reflection and Translation of Shapes Vocabulary

<p><b>Translate / Translation</b></p> <p>A shape is translated when it is moved without rotating or resizing.</p> <p>Every point of the shape moves the same distance in the same direction.</p>	<p><b>Reflect / Reflection</b></p> <p>A shape is reflected about a line when it is flipped over a mirror line.</p> <p>Every point of the shape is the same distance from the mirror line as the same point on the reflected shape.</p>
<p><b>Vertex / Vertices</b></p> <p>The corner of a shape is called a vertex. The plural is vertices. A triangle has 3 vertices.</p> <p>vertex →</p>	<p><b>Point</b></p> <p>A point is an exact location. It has no size, only position. They are shown by dots or parts of a line, but they have no size.</p> <p>point →</p>
<p><b>Axis / Axes</b></p> <p>A coordinate grid has axes. The x axis is horizontal. The y axis is vertical.</p>	<p><b>Coordinates</b></p> <p>Coordinates mark the location of a point on a coordinate grid. The coordinates are written in brackets in the format (x,y) where x is how far along and y is how far up.</p>
<p><b>Parallel</b></p> <p>Parallel lines are always the same distance apart and never touching.</p>	<p><b>Perpendicular</b></p> <p>Perpendicular lines meet at a right angle.</p>

## Co-ordinates in the 4 Quadrants

**Warning!** This work involves negative numbers. Remember to follow the same rules for creating co-ordinates – x before y.

**1st Quadrant**  
If both co-ordinates are positive numbers, it will fall in here. (4,3)

**2nd Quadrant**  
If the first co-ordinate is negative and the second co-ordinate is positive, it will fall in here. (-4,3)

**3rd Quadrant**  
If both co-ordinates are negative numbers, it will fall in here. (-4,-3)

**4th Quadrant**  
If the first co-ordinate is positive and the second co-ordinate is negative, it will fall in here. (4,-3)

Can you work out what the co-ordinates are for each of the 4 letters?

## SYMMETRY

### Lines of Symmetry

One line of symmetry      two lines of symmetry

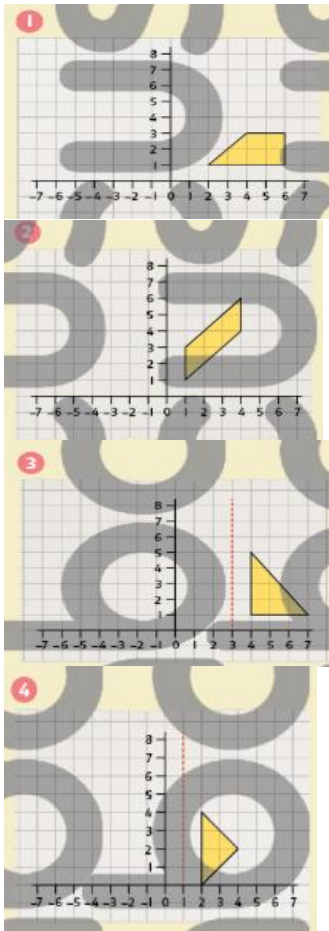
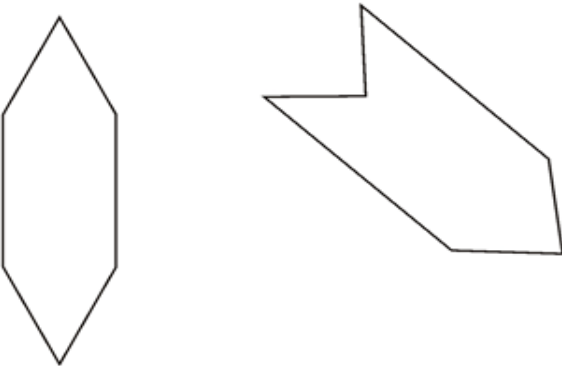
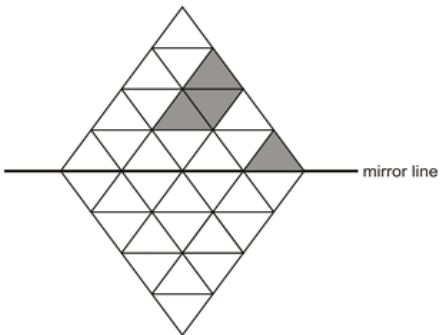
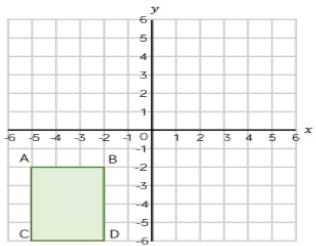
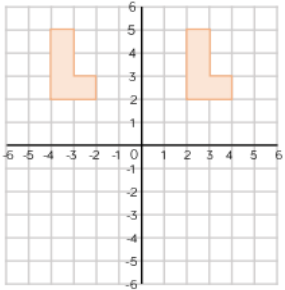
Three lines of symmetry      4 lines of symmetry      5 lines of symmetry

Lines that split the figure in half. Both sides are exactly the same!

**Year 6 Maths**

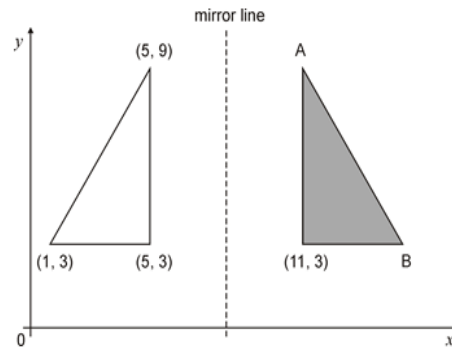
**Main activity**

Complete at least 2 columns, more if you can!

Task 1	Task 2	Task 3	Task 4
<p><b>Practice</b> Draw the graphs, write the coordinates of the shapes and then reflect the shape writing the new coordinates.</p> 	<p><b>Arithmetic</b></p> <p>15 <math>98.31 + 10 =</math></p> <hr/> <p>16 <math display="block">\begin{array}{r} 72 \\ \times 63 \\ \hline \end{array}</math></p> <hr/> <p>17 <math display="block">\begin{array}{r} 35.8 \\ \times 3 \\ \hline \end{array}</math></p> <hr/> <p>18 <math>2^3 + 1^2 =</math></p> <p>19 <math>95\% \text{ of } 200 =</math></p> <hr/> <p>20 <math>2\frac{3}{5} + 1\frac{4}{5} =</math></p> <hr/> <p>21 <math>0.6 = \frac{?}{50}</math></p>	<p><b>Problem Solving</b></p> <p><b>Task 1</b> Each of these shapes has one or more lines of symmetry. Draw all the lines of symmetry on each shape.</p>  <p><b>Task 2</b> Shade in the reflection of this shape. You may use a mirror.</p> 	<p><b>Reasoning</b></p> <p><b>Task 1</b> Rectangle ABCD is the result of a rectangle being reflected in either the <math>x</math>- or the <math>y</math>-axis. Where could the original rectangle have been? Draw the possible original rectangles on the coordinate grid, and label the coordinates of each vertex.</p>  <p><b>Task 2</b> Annie has reflected the shape in the <math>y</math>-axis. Is her drawing correct? If not explain why.</p> 

**Task 3**

The shaded triangle is a reflection of the white triangle in the mirror line.



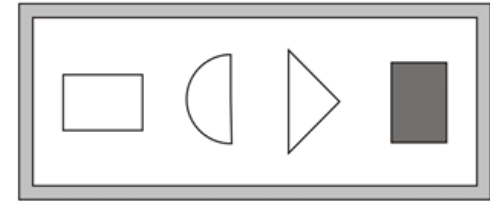
Write the co-ordinates of point A and point B.

A is (  ,  )

B is (  ,  )

**Task 3**

Here is a pattern on a window.



Draw how the pattern would look from the other side of the window.

