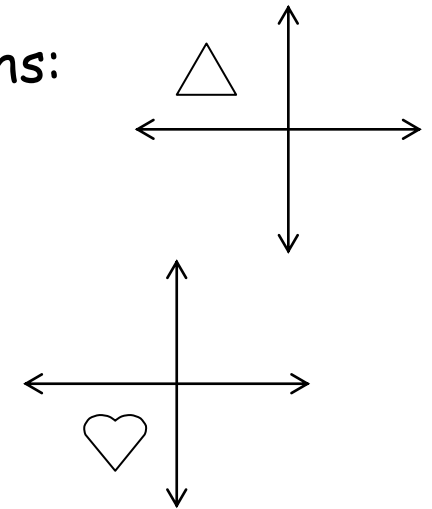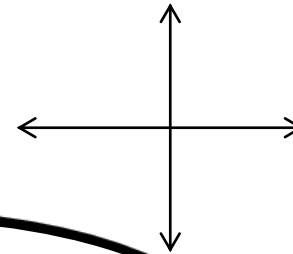**Describe translation in words:**

(x + 3), (y – 5)

(x – 1), (y + 4)

Examples on graphs:

Translation Symmetry

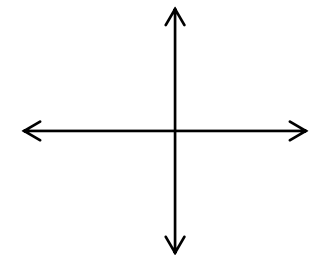**2 examples using variables:**
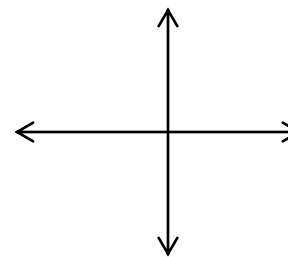
6 units to the left and 1 unit up:

(x, y) →

3 units down and 4 units to the right:

(x, y) →

Non-Examples:

Describe points in words:

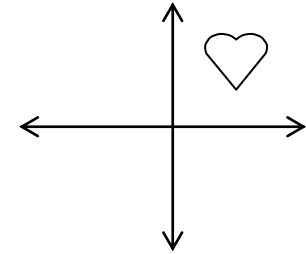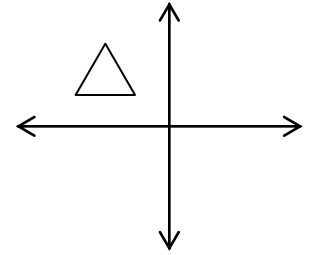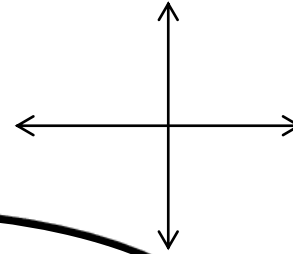Over the x-axis, the x-coordinates _____

_____

Over the y-axis, the y-coordinates _____

_____

Examples on graphs:

Reflective Symmetry

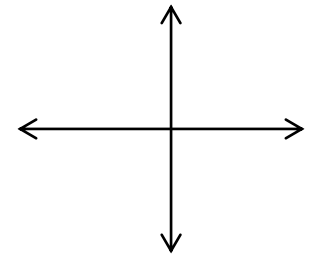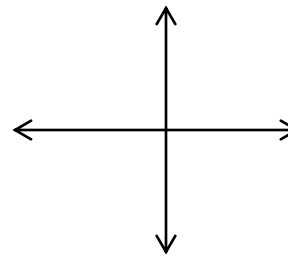## 2 examples using variables:

Over the y-axis:

$(x, y) \rightarrow$
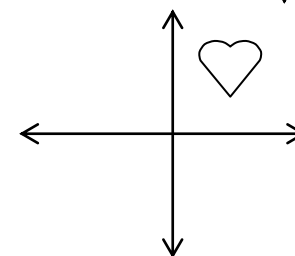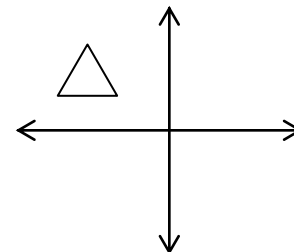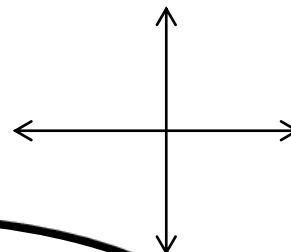
Over the x-axis:

$(x, y) \rightarrow$

Non-Examples:

Describe in words:

90° clockwise about the origin, the x and y-coordinates _____ and _____

_____

_____

Examples on graphs:

Rotation Symmetry
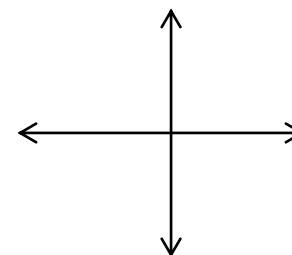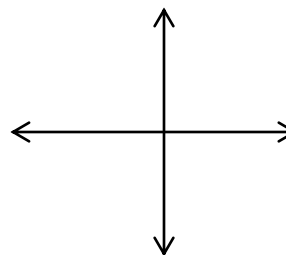
2 examples using variables:

180° (x, y) →
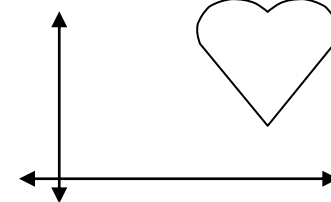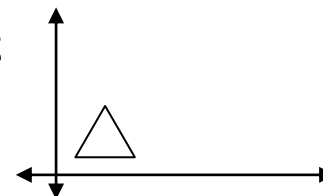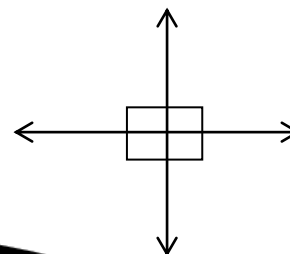
360° (x, y) →

Non-Examples:

Describe in words:

To find the new points in a dilation,

_____

_____

Examples on graphs:

Dilation Symmetry

2 examples using variables:

By a scale factor of 7:

$(x, y) \rightarrow$

By a scale factor of $\frac{1}{4}$:

$(x, y) \rightarrow$

Non-Examples: