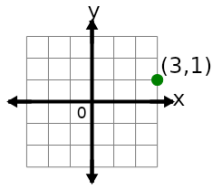




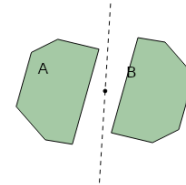
## Describe transformations using coordinates

- 1** What does the value 1 in the point's coordinate mean?



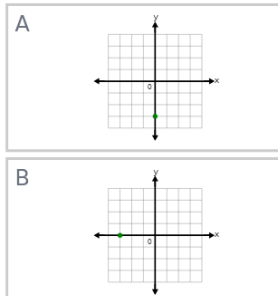
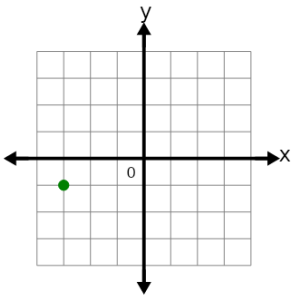
- A y is equal to -1    B x is equal to -1    C y is equal to 1    D x is equal to 1

- 2** Identify the transformation that changes shape A into shape B

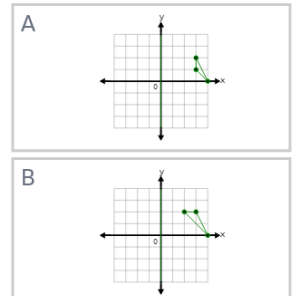
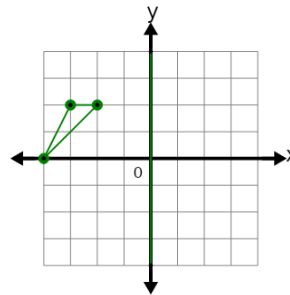


- A Reflection    B Translation    C Rotation

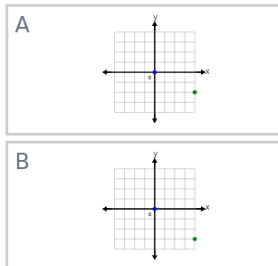
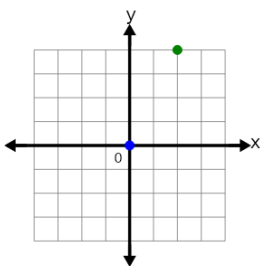
- 3** Translate this point by up 1



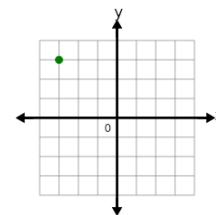
- 4** Reflect this shape across the Y axis



- 5** Rotate this point by  $90^\circ$  clockwise about the origin



- 6** Translate this point by right 1

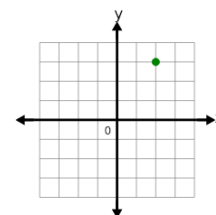


- A (2, -3)    B (-2, 3)

- 7** (0, -2)

|         |        |
|---------|--------|
| A       | B      |
| (1, -2) | (0, 0) |

- 8** Translate this point by (1, 0)



- A (3, 3)    B (-3, 3)



## Describe transformations using coordinates

**9** $(-2, 2)$ 

A

 $(-2, -4)$ 

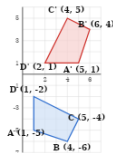
B

 $(-2, 4)$ **10**

Find the  $(x, y)$  change that the given move between  $(x, y)$  coordinates A and B would be

Point A :  $(-3, 1)$ Point B :  $(2, 5)$ A  $(6, 4)$ B  $(4, 5)$ C  $(4, -5)$ D  $(4, 4)$ E  $(-5, 4)$ F  $(5, 4)$ **11**

The quadrilateral ABCD is rotated  $90^\circ$  counter-clockwise about the origin to give quadrilateral A'B'C'D'. Which coordinate rule describes this rotation?

A  $(x, y) \rightarrow (y, -x)$ B  $(x, y) \rightarrow (-x, -y)$ C  $(x, y) \rightarrow (-y, x)$ **12**

A shape is rotated  $180^\circ$  about the origin. Which coordinate rule describes this rotation?

A

 $(x, y) \rightarrow (y, -x)$ 

B

 $(x, y) \rightarrow (-x, -y)$ 

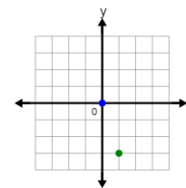
C

 $(x, y) \rightarrow (-y, x)$ **13**

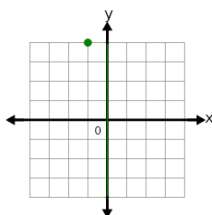
A rotation about the origin uses the coordinate rule  $(x, y) \rightarrow (-x, -y)$ . Which rotation does this represent?

A  $90^\circ$  clockwiseB  $270^\circ$  clockwiseC  $180^\circ$ **14**

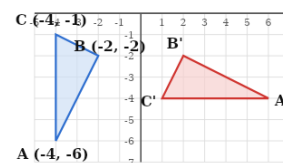
Rotate this point by  $90^\circ$  counter-clockwise about the origin

A  $(3, 1)$ B  $(1, -3)$ **15**

Reflect this point across the Y axis

A  $(1, 4)$ B  $(-4, -1)$ **16**

The triangle ABC is rotated  $270^\circ$  clockwise about the origin to give triangle A'B'C'. What are the coordinates of C'?

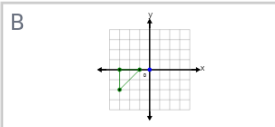
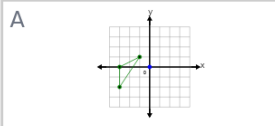
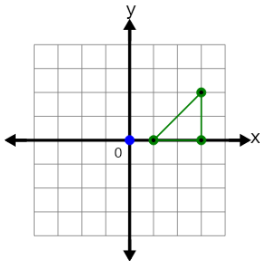
A  $(1, -4)$ B  $(-1, -4)$ C  $(1, 4)$ D  $(-1, 4)$



## Describe transformations using coordinates

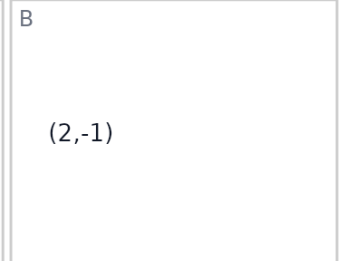
**17**

Rotate this shape by  $180^\circ$  clockwise about the origin



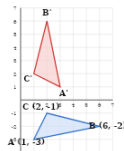
**18**

(2,0)



**19**

The triangle ABC is rotated  $270^\circ$  clockwise about the origin using the rule  $(x, y) \rightarrow (-y, x)$  to give triangle A'B'C'. What are the coordinates of B'?



A (-2, 6)

B (2, 6)

C (2, -6)

D (-2, -6)

**20**

Translate this point by (1,-1)

