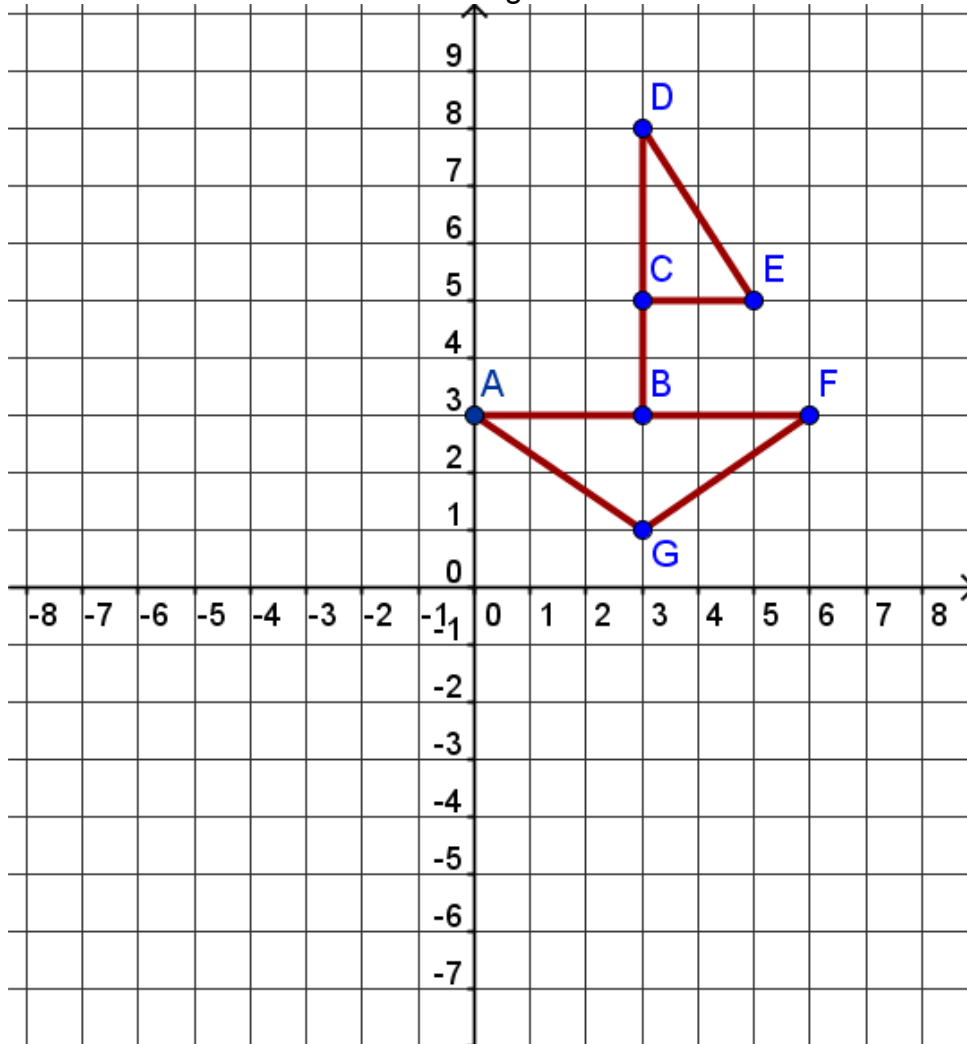


Name \_\_\_\_\_

# Float My Boat

The figure shows a "boat" drawn on a coordinate grid.



1. In the table below, write the coordinates of each point in the figure.

Point	x-coordinate	y-coordinate
A		
B		
C		
D		
E		
F		
G		

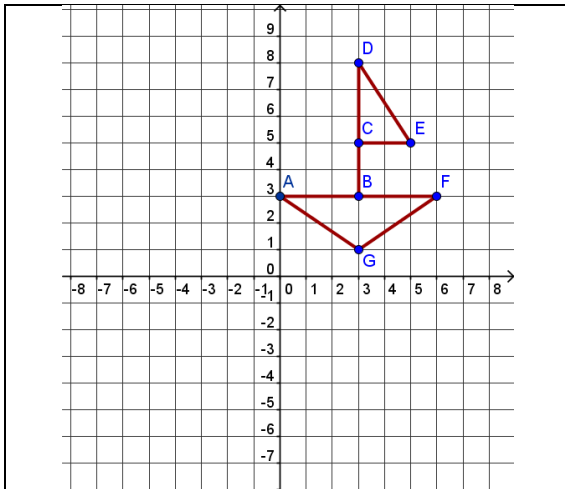
2. In geometry each of the transformations can be generalized using coordinate notation. For example, when the pre-image point (11, 5) is translated to the left 2 units and up 3 units to produce the image point (9, 8), the corresponding coordinate notation would be:

$$T : (x, y) \rightarrow (x - 2, y + 3)$$

Using the information from Tables A-F and coordinate notation, complete the chart below.

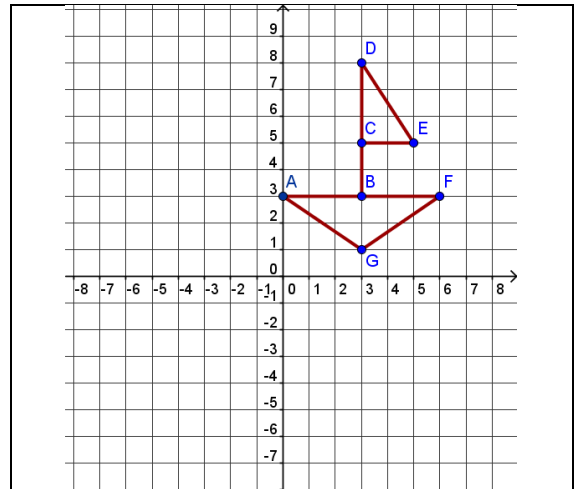
	Transformation (verbal description)	Generalized Rule (coordinate notation)
A)	Translate the figure 2 units down	$T : (x, y) \rightarrow ( \quad , \quad )$
B)	Translate the figure 3 units left	
C)	Translate the figure 1 unit right and 2 units up	
D)	Translate the figure 3 units down and 2 units left	
E)	Reflect the figure over the $x$ -axis	
F)	Reflect the figure over the $y$ -axis	

3. Follow the instructions for each. Record the new  $x$ - and  $y$ -coordinates in the tables below. Describe in words and symbols the patterns you observe in the coordinates.



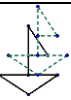
**A) Translate the boat two units down.**

Image Point	$x$	$y$
A'		
B'		
C'		
D'		
E'		
F'		
G'		
How did the coordinates change? (Use words)		
How did the coordinates change? (Use symbols)		



**B) Translate the boat three units left.**

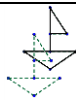
Image Point	$x$	$y$
A'		
B'		
C'		
D'		
E'		
F'		
G'		
How did the coordinates change? (Use words)		
How did the coordinates change? (Use symbols)		



Try it without a grid!

**C) Translate the boat one unit right and two units up.**

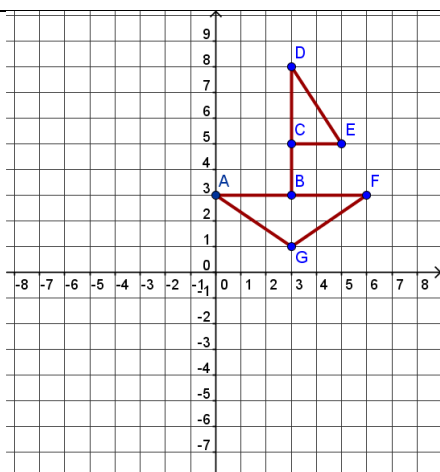
Image Point	x	y
A'		
B'		
C'		
D'		
E'		
F'		
G'		
Change (words)		
Change (symbols)		



Try it without a grid!

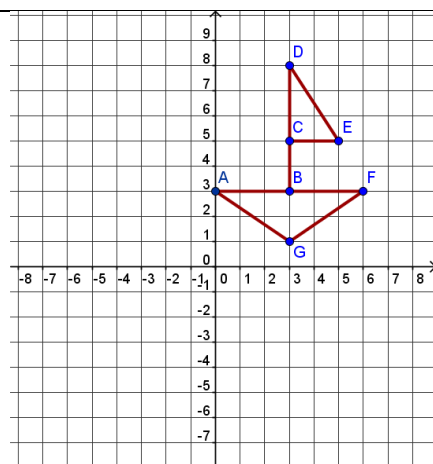
**D) Translate the boat three units down and two units left.**

Image Point	X	y
A'		
B'		
C'		
D'		
E'		
F'		
G'		
Change (words)		
Change (symbols)		



**E) Reflect the boat over the x-axis.**

Image Point	x	y
A'		
B'		
C'		
D'		
E'		
F'		
G'		
Change (words)		
Change (symbols)		



**F) Reflect the boat over the y-axis.**

Image Point	X	y
A'		
B'		
C'		
D'		
E'		
F'		
G'		
Change (words)		
Change (symbols)		