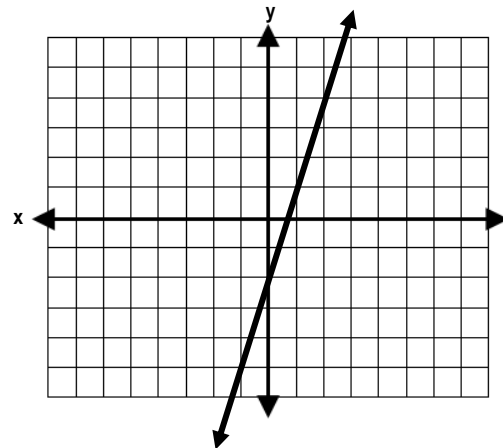


**Essential Question:** How do we write the equation of a line from a graph?

**Do Now:**

A. Determine the slope of the line.



B. What is the y-intercept of the line?

C. If we know the slope and y-intercept, can we write an equation that represents the graph?

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**Writing the Equation of a Line in Slope-Intercept Form**  $y = mx + b$

Write an equation of a line in slope-intercept form given the information below.

1)  $m = 4$   $b = -3$

2)  $m = -3$   $b = 7$

3) slope:  $-1$  y-int:  $1$

4) slope:  $\frac{2}{3}$  y-int:  $0$

5) slope:  $0$  y-int:  $-2$

6) slope: undefined x-int:  $3$

**Writing the Equation of a Line from a Graph**

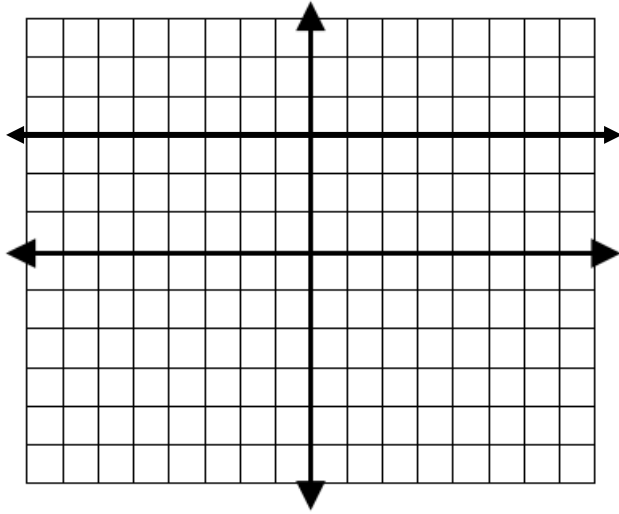
**Step 1:** Determine the slope of the line ( $m$ )

**Step 2:** Determine the y-intercept of the line ( $b$ )

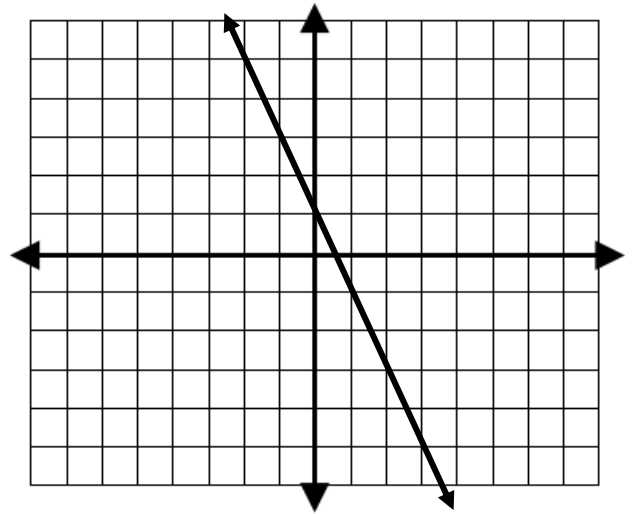
**Step 3:** Write the equation of the line in slope-intercept form ( $y = mx + b$ )

*See examples on the next page.*

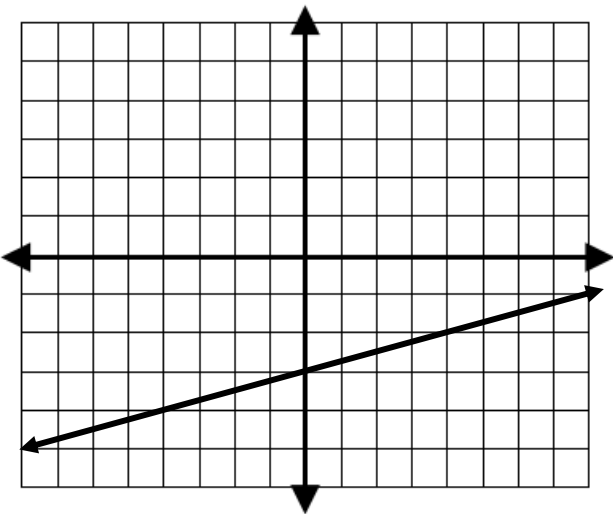
7)



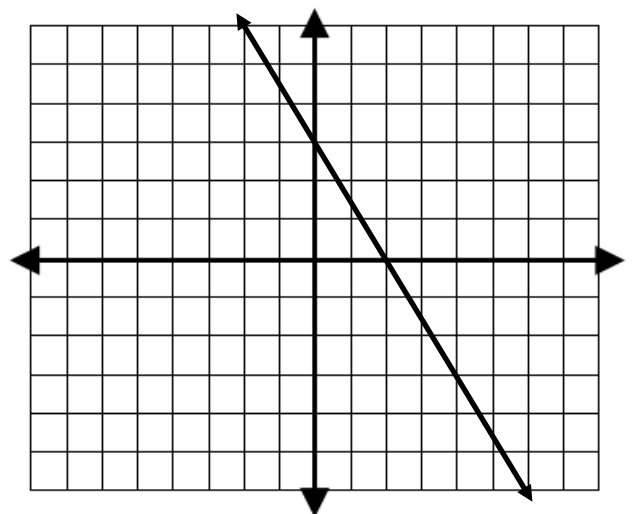
8)



9)



10)

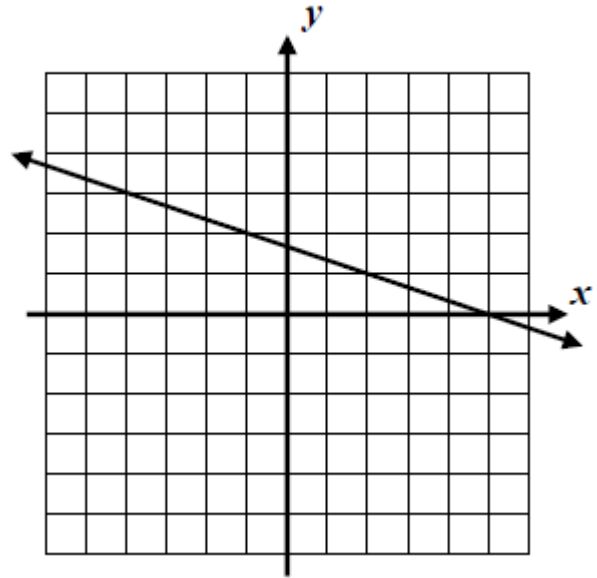




**Think about this...**

When the  $y$ -intercept is an integer it is fairly easy to calculate the exact relationship between  $x$  and  $y$ . Let's try writing the equation of a line where the  $y$ -intercept is not an integer.

- 11) Find the equation of the linear function graphed at right. Determine if your equation is correct by testing it with a point on the line.



**Turn and Talk**



- 1) Determine the slope and  $y$ -intercept of each graph below. Write the equation of the line. Each letter represents a different line.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

