

**DAY 5 - Graphing Using Slope and Intercept**

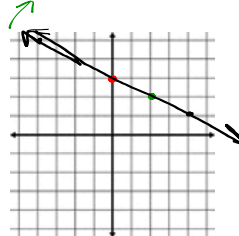
To graph a linear equation using the slope and the intercept we:

1. Write the equation in slope-intercept form.  $y = mx + b$
2. FIND the slope and the y-intercept.
3. plot the point  $(0, b)$
4. using m draw a slope triangle to locate a second point
5. Draw a line through the two points

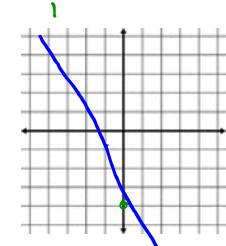
y-intercept  
slope

**Example 1:**

Graph the equation of the line with a slope of  $1/2$  and y-intercept of 3.



Graph the equation of the line when slope  $m = -3$  and  $b = -4$



**Example 2:**

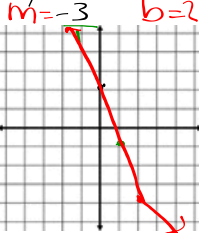
Graph the equation  $3x + y = 2$

Graph the equation  $3x - 4y = 12$

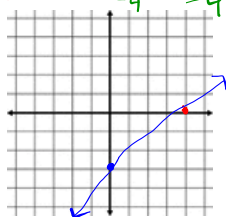
$$y = -3x + 2$$

$$y = \frac{3}{4}x - 3$$

$$-4y = -3x + 12$$



$m = -3$   
 $b = 2$



**Example 3:**

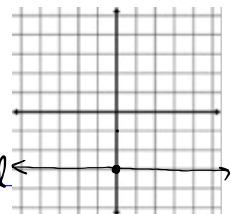
Graph the equation  $y = -3$

**Step 1:** Plot the y-intercept

**Step 2:** Determine the slope:  $0$

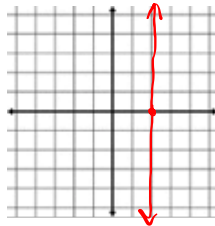
**Step 3:** What kind of line is this? horizontal

**Step 4:** Draw the line



Graph the equation of  $x = 2$

Vertical  
undefined  
or no slope



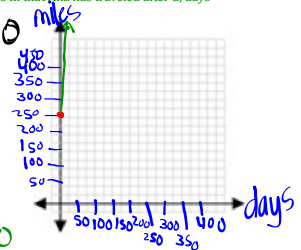
**Applications:**

Ana is driving from her home in Miami, to her grandmother's house in NYC. On the first day, she will travel 200 miles to Orlando, to pick up her cousin. Then they will travel 350 miles each day.

a. an equation for the total number of miles  $m$  that Ana has traveled after  $d$ , days

$$m = 350(d) + 250$$

b. Graph the equation.



c. How long will the drive take if the total length of the trip is 1343 miles?

$$\begin{aligned} 1343 &= 350d + 250 \\ -250 &\quad -250 \\ \hline 1093 &= 350d \\ \frac{1093}{350} &= \frac{350d}{350} \quad 3.12 \text{ days} \end{aligned}$$

$$y = 3x - 9$$

$$m = 3$$

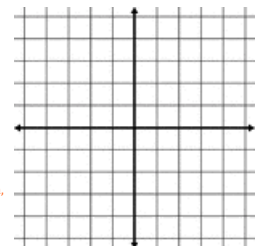
$$b = -9$$

**Transformations Of Lines**

Graph the line  $y = x$

This is what we call the \_\_\_\_\_ function of a linear pattern.

When you see an equation in slope-intercept form, it is a \_\_\_\_\_ from the parent function

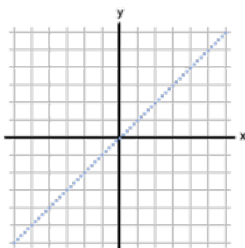


Example 4:

Parent Function  $y = x$

Graph the line  $y = x - 4$

What has changed from the parent function to the new line?

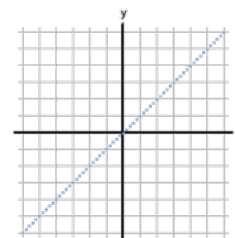


We would say that the line has been SHIFTED \_\_\_\_\_.

Example 5:

Graph the line  $y = 3x$

What has changed from the parent function to the new line?



Example 6:

Graph the line  $y = 2x + 3$

What has changed from the parent function to the new line?

