

3.5 Day 2: Equations of Lines

Can you remember what "Slope-intercept Form" is? Can you give an example of an equation in slope intercept form & identify the slope and y-intercept?

Slope Intercept form: $y = mx + b$

Ex: $y = 2x - 11$

m: Slope

b: y-intercept (where the graph touches the y axis)

as an ordered pair!

Ex: $(0, -11)$

Identify the slope and y-intercept of the following lines.

Ex: $y = -5x + 19$
Slope: -5 y-int: $(0, 19)$

Ex: $y = -\frac{4}{3}x - 11.2$
Slope: $-\frac{4}{3}$ y-int: $(0, -11.2)$

Ex: $y = \pi x + \frac{17}{3}$
Slope: π y-int: $(0, \frac{17}{3})$

Lesson 3.5 Equations of Parallel and Perpendicular Lines Day 2

Graph the following lines:

Ex: $y = -3x + 4$

Slope: -3 AKA $\frac{-3}{1}$ $\downarrow 3$
 $\rightarrow 1$
y-int: $(0, 4)$

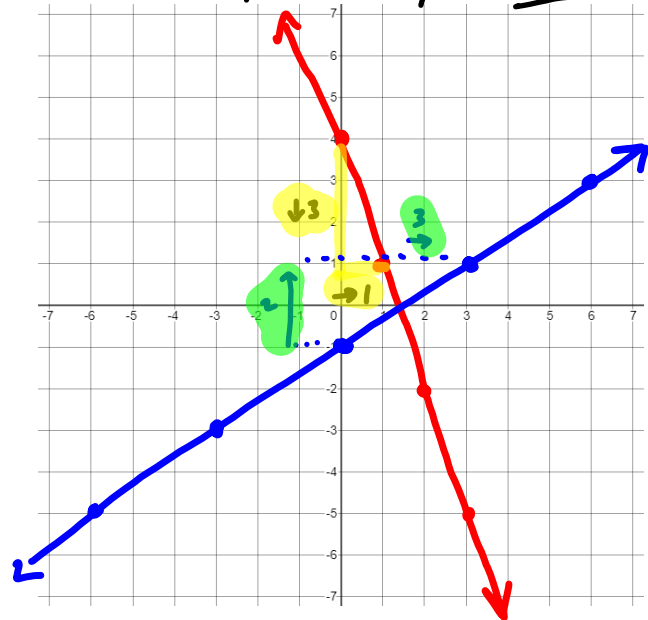
Ex: $y = \frac{2}{3}x - 1$

Slope: $\frac{2}{3}$ $\uparrow 2$
 $\rightarrow 3$

y-int: $(0, -1)$

1. Plot y-int.

2. From y-int, do your Slope.



Lesson 3.5 Equations of Parallel and Perpendicular Lines Day 2

Slopes of Parallel and Perpendicular Lines:

Parallel Lines have the same slope.

Perpendicular Lines have an Opposite Reciprocal slope.

Opposite : Sign changes (positive/negative)

Reciprocal: Fraction flips

Ex: Line A and B are parallel. Line A has a slope of $-\frac{15}{2}$. Find the slope of Line B.

$$\text{Slope of Line B: } -\frac{15}{2}$$

Ex: Line J and K are perpendicular. Line K has a slope of -7 . Find the slope of Line J.

$$\text{Slope of Line J: } +\frac{1}{7}$$

Ex: Two lines are **parallel**. One of the lines crosses through $(-3, -4)$ and $(0, 8)$. What is the slope of the second line?

Slope of 2nd Line:

4

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{8 - (-4)}{0 - (-3)} = \frac{12}{3} = 4$$

Same Slope

Ex: Two lines are perpendicular. One line crosses through $(7, 0)$ and $(15, 10)$. What is the slope of the second line?

Find slope of 1st line: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 0}{15 - 7} = \frac{10}{8} = \frac{5}{4}$

Slope of 2nd line: $-\frac{4}{5}$

opposite Reciprocal of $\frac{5}{4}$

End of Day 2

Homework:

3.5 Worksheet #2