

Geometry - 3.5 Equations of Parallel and Perpendicular Lines

Slope refresher:

Slope of Blue line:

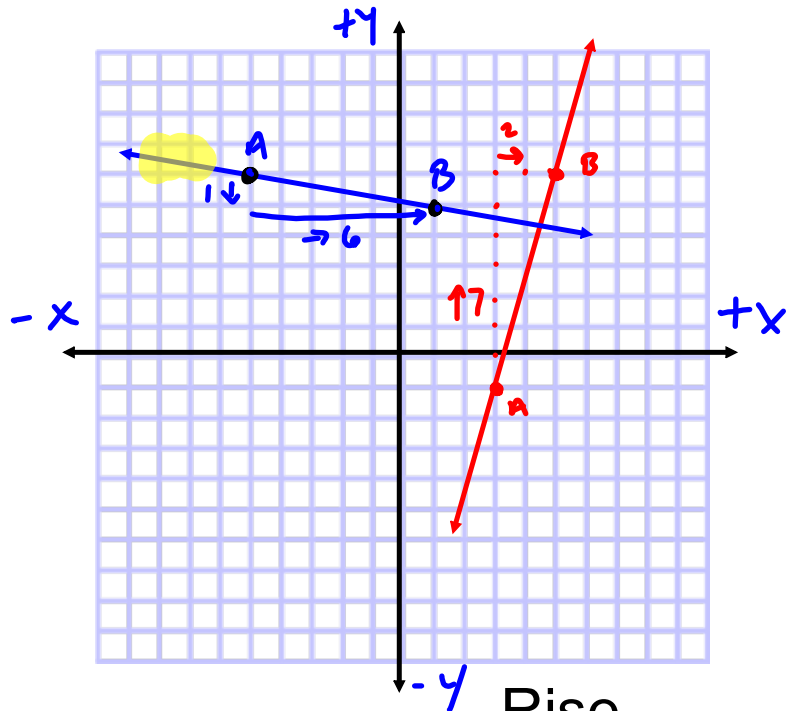
↓ 1 → 6

$$\frac{-1}{6}$$

Slope of Red line:

↑ 7 → 2

$$\frac{7}{2}$$



Slope is understood as a Fraction, $\frac{\text{Rise}}{\text{Run}}$

Rise: How far up or down you go to get from a point A on the line to another point B on the line.

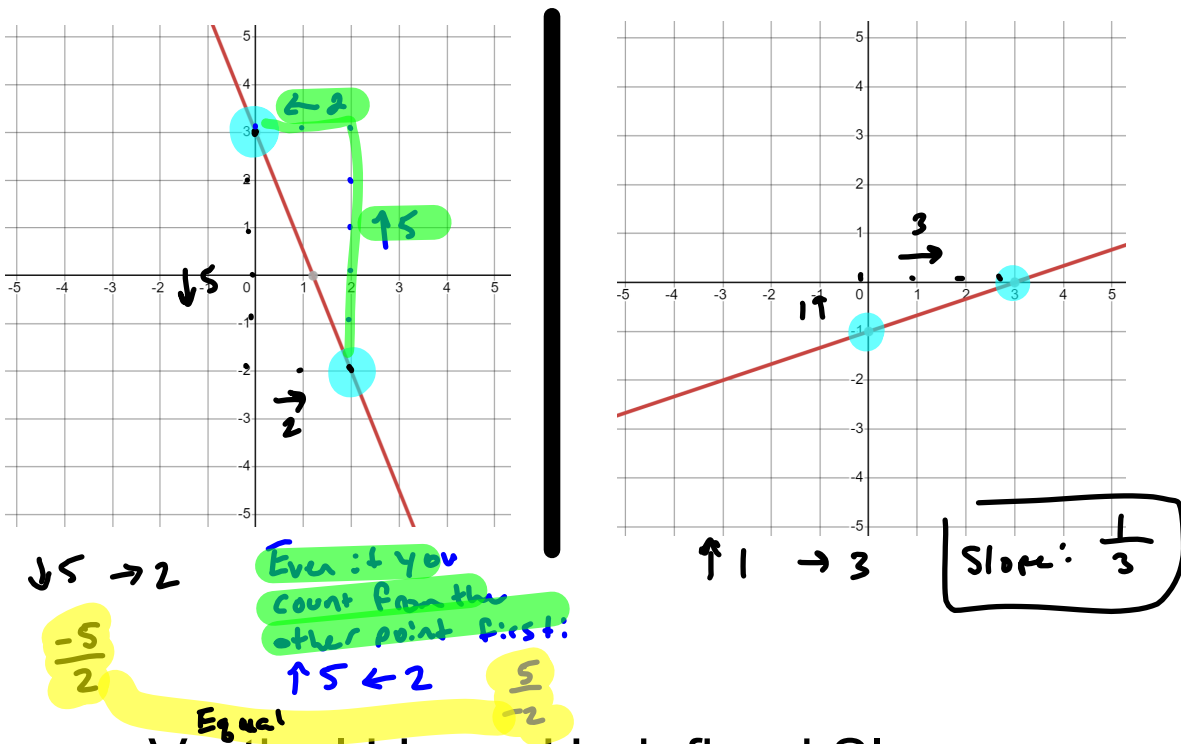
Going up is Positive, going down is Negative.

Run: How far left and right you go to get from A to B.

Going Right is Positive, going Left is Negative.

Lesson 3.5 Equations of Parallel and Perpendicular Lines

Ex: State the slope of the lines



Vertical Lines: Undefined Slope

Horizontal Lines: Slope of 0

Lesson 3.5 Equations of Parallel and Perpendicular Lines

Finding slope without a graph:

There are many ways to determine slope. If you know two points the line crosses, you can find the slope using the Slope Formula.

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{Given } (x_1, y_1) (x_2, y_2)$$

Find the slope of the previous two graphs given this information to see if we get the same slope...

All ordered pairs
(x, y)

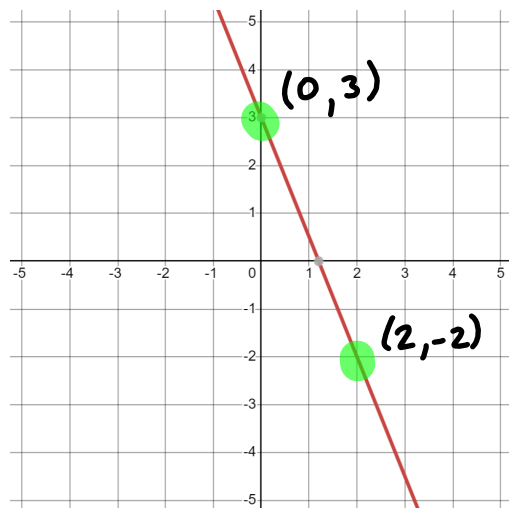
Two points that this graph crosses:

$$(0, 3) \quad (2, -2)$$

$x_1 \quad y_1 \quad x_2 \quad y_2$

Find Slope:

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 3}{2 - 0} = \frac{-5}{2}$$



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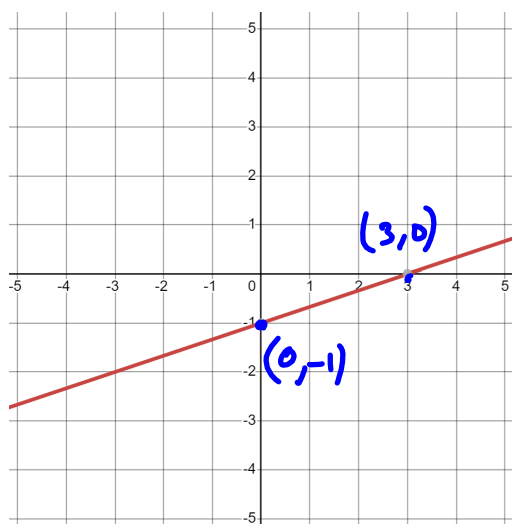
$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{Given } (x_1, y_1) \quad (x_2, y_2)$$

Two points that this graph crosses:

$$\begin{array}{cc} (0, -1) & (3, 0) \\ x_1 \ y_1 & x_2 \ y_2 \end{array}$$

Find Slope:

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - (-1)}{3 - 0} = \boxed{\frac{1}{3}}$$



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Ex: Find the slope of the line that passes through the points $(-2, 7)$, $(4, 13)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{13 - 7}{4 - (-2)} = \frac{6}{6} = 1$$

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End of Day 1:

Homework: 3.5 Worksheet #1