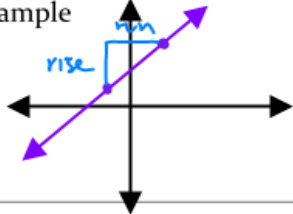
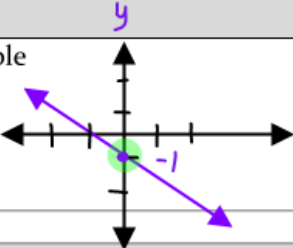


## Lesson 8-2

<i>slope</i> aka "rate of change"	
Definition $\frac{\text{rise}}{\text{run}}$	Example 

<i>y-intercept</i>	
Definition Where a line crosses the y-axis	Example 

<i>slope-intercept form</i>	
Definition	Example

**Example 1:** Identify the slope and y-intercept of each equation.

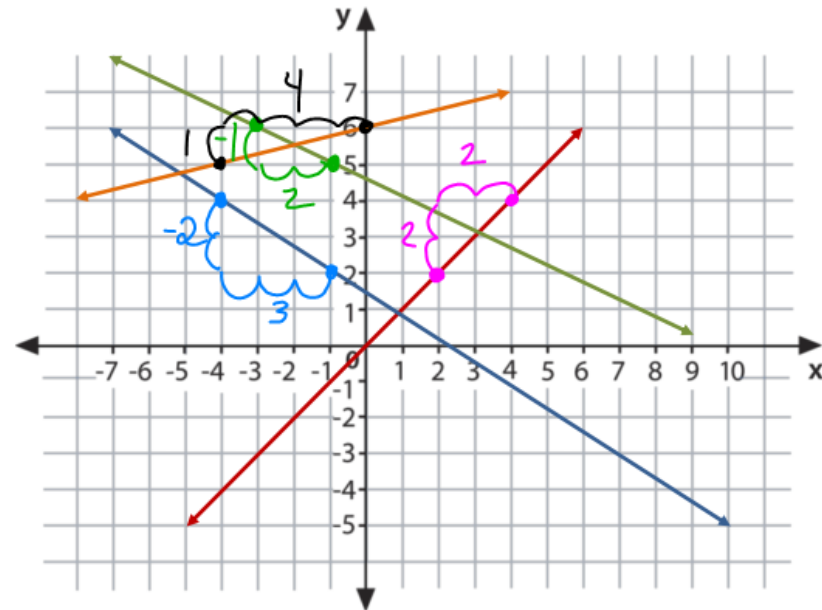
I Do	We Do	You Do
$y=3x + 4$	$y=\frac{2}{3}x + 7$	$y=-4x - 11$

**Example 2:** Write the equation in slope-intercept form with the given slope and y-intercept.

I Do	We Do	You Do
slope = -7 y-intercept = 3	slope = $\frac{2}{3}$ y-intercept = -4	slope = -12 y-intercept = -18

**Example 3: Finding Slope of a Line**

Find the slope of the line.

 $\frac{\text{rise}}{\text{run}}$ 

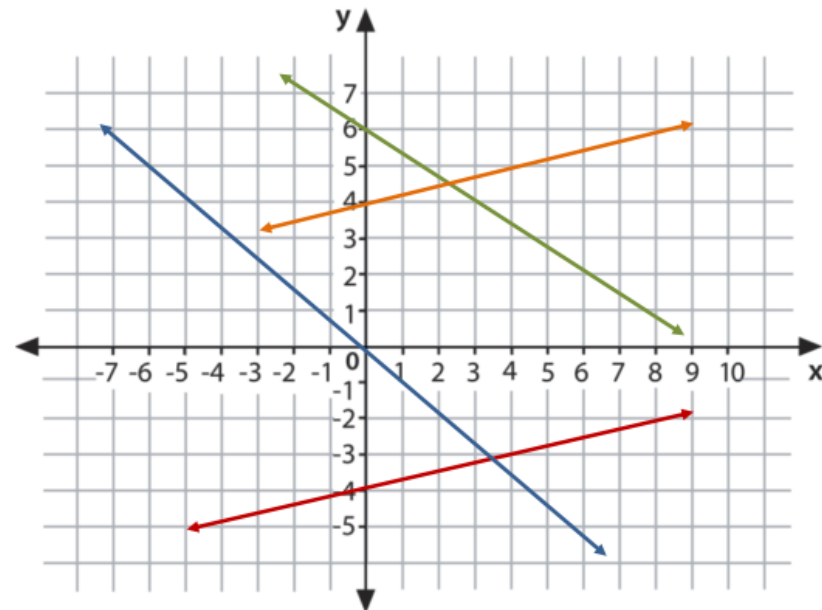
I Do	We Do	You Do	You Do
Red $\frac{2}{2} = \boxed{1}$	Blue $\frac{-2}{3}$	Green $\frac{-1}{2}$	Orange $\frac{1}{4}$

<i>positive &amp; negative slope</i>	
Definition	Example

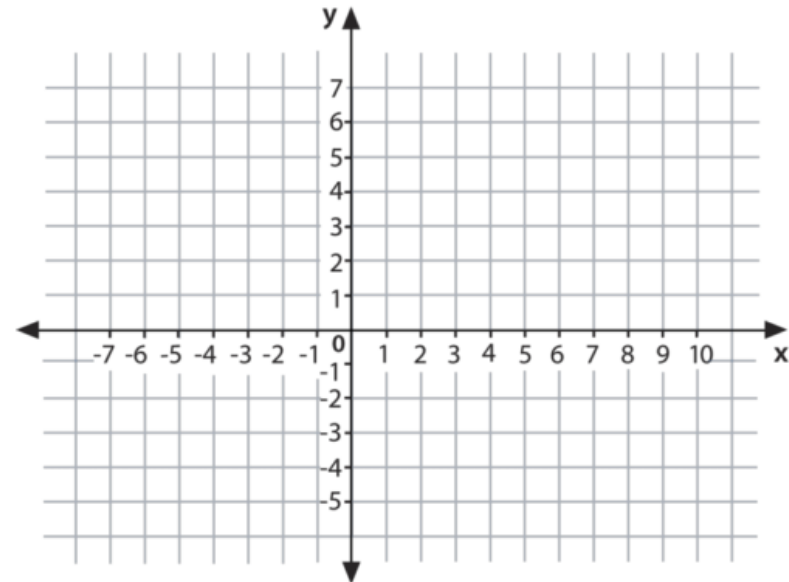
<i>zero slope</i>	Decode
Definition	Example

<i>undefined slope</i>	Decode
Definition	Example

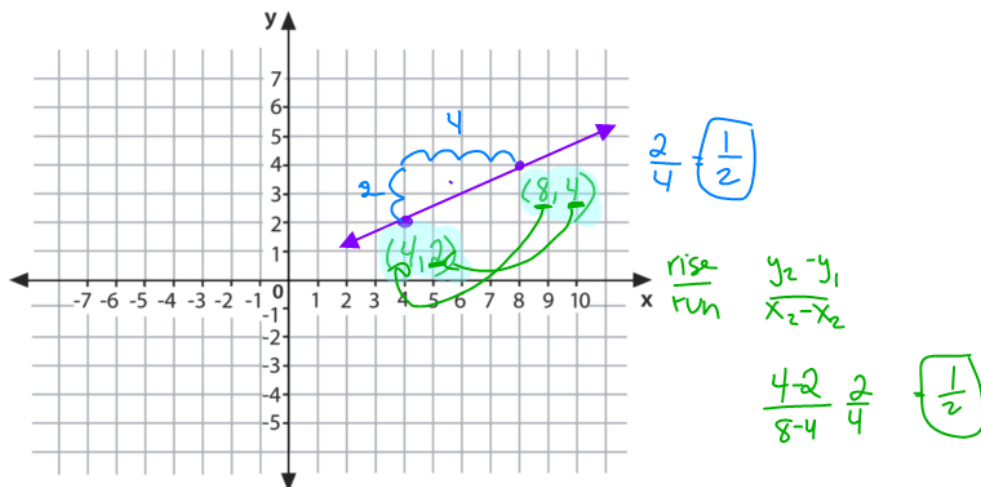
**Example 4:** Write an equation in slope-intercept form for each line.



I Do	We Do	You Do	You Do
Red	Blue	Green	Orange

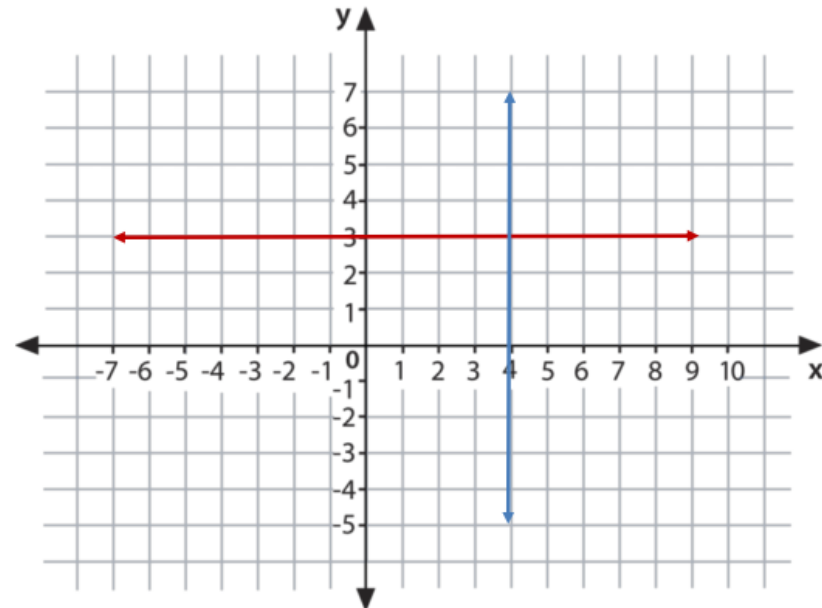
**Example 5: Graphing an Equation in Slope-Intercept Form**

I Do	We Do
$y = -3x + 2$	$y = \frac{1}{3}x - 6$

**Example 5: Graphing an Equation in Slope-Intercept Form**

We Do	You Do
$y = -4x + 7$	$y = \frac{2}{5}x - 1$

**Example 6:** Find the slope of the line.



I Do	We Do	We Do	We Do
Red	Blue	Draw a line with zero slope at $y=4$	Draw a line with undefined slope at $x=-6$



### slope formula

Definition

$$\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

Example

$$\frac{12 - 5}{9 - 3} = \frac{7}{6}$$

#### Example 7: Finding Slope Using Two Points

I Do	We Do	We Do
$(2, 4)$ and $(1, 3)$ $x_2, y_2$ $x_1, y_1$	$(4, -6)$ and $(1, 3)$ $x_1, y_1$ $x_2, y_2$	$(1, 7)$ and $(9, 1)$ $x_1, y_1$ $x_2, y_2$
$\frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 3}{2 - 1} = \frac{1}{1} = 1$	$\frac{3 - (-6)}{1 - 4} = \frac{9}{-3} = -3$	$\frac{1 - 7}{9 - 1} = \frac{-6}{8} = \frac{-3}{4}$

You Do	You Do	You Do
$(-2, -3)$ and $(4, 6)$	$(-5, -4)$ and $(-8, -6)$	$(-8, -2)$ and $(7, 8)$
$\frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-3)}{4 - (-2)} = \frac{9}{6} = \frac{3}{2}$	$\frac{-6 - (-4)}{-8 - (-5)} = \frac{-2}{-3} = \frac{2}{3}$	$\frac{8 - (-2)}{7 - (-8)} = \frac{10}{15} = \frac{2}{3}$