

5-8-18

Aim: SWBAT graph a line given its slope and a point on that line
AND write an equation in slope-intercept form ($y = mx + b$).

HW: WS

Quizzes Thursday: 1. Linear Equations 2. Parallel Lines

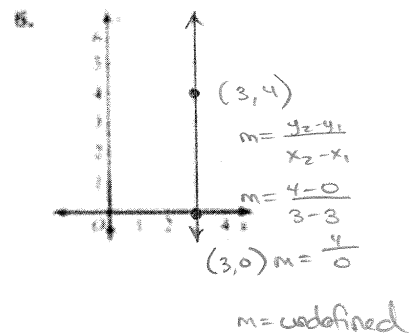
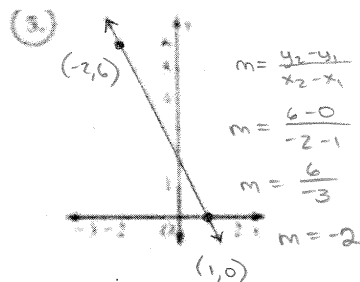
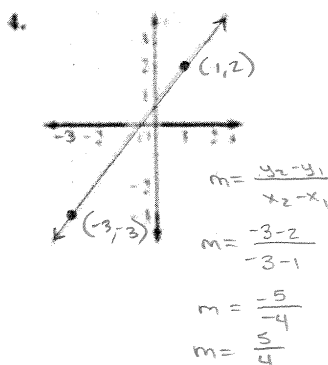
Do Now: Worksheet

HW: Pg. 614 # 1-11, 16 - 20, 30

Complete the statement.

- Between two points, the change in the y-coordinate is called the rise.
- Between two points, the change in the x-coordinate is called the run.
- The ratio of vertical change to horizontal change between any two points on a line is the slope of the line.

Write the coordinates of the two given points on the line. Then find the slope of the line.



Find the slope of the line through the points.

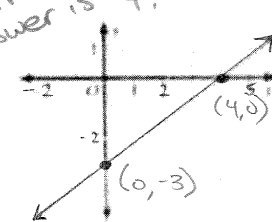
<p>7. $(-4, 8), (6, 6)$</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{6 - 8}{6 - (-4)}$ $m = \frac{-2}{10}$ $m = -\frac{1}{5}$	<p>8. $(1, 4), (1, -7)$</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{-7 - 4}{1 - 1}$ $m = \frac{-11}{0}$ $m = \text{undefined}$	<p>9. $(-5, 4), (3, 4)$</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{4 - 4}{3 - (-5)}$ $m = \frac{0}{8}$ $m = 0$
--	--	---

<p>10. $(-2, -4), (4, 2)$</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{2 - (-4)}{4 - (-2)}$ $m = \frac{6}{6}$ $m = 1$	<p>11. $(-3, 1), (-3, -2)$</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{-2 - 1}{-3 - (-3)}$ $m = \frac{-3}{0}$ $m = \text{undefined}$
--	--

16. Describe and correct the error made in finding the slope of the line shown.

*This student did Δx over Δy .
It should be flipped and the answer is $\frac{3}{4}$.*

\times slope = $\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 0}{0 - (-3)} = \frac{4}{3}$



Sketch a line with the given type of slope.

17. negative



18. undefined



19. positive



20. Zero



30. A line contains the points (p, q) and $(p + 2, q + 2)$. Find the slope of the line.

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

$$m = \frac{q + 2 - q}{p + 2 - p}$$

$$m = \frac{2}{2}$$

$$m = 1$$

Aim: SWBAT write an equation in slope-intercept form and graph a line given a point and a slope.

Do Now: Tell whether the ordered pair is a solution of the equation. (Pg. 595 # 6 - 11)

6. $y = 4x + 2; (2, 10)$ $10 \stackrel{?}{=} 4 \cdot 2 + 2$ $10 \stackrel{?}{=} 8 + 2$ $10 = 10$ YES	7. $2x + y = 5; (7, 5)$ $2 \cdot 7 + 5 \stackrel{?}{=} 5$ $14 + 5 \stackrel{?}{=} 5$ $19 \neq 5$ NO	8. $y = 6 - x; (-3, 3)$ $3 \stackrel{?}{=} 6 - (-3)$ $3 \neq 9$ NO
9. $x + 8y = 2; (10, -1)$ $10 + 8(-1) \stackrel{?}{=} 2$ $10 - 8 \stackrel{?}{=} 2$ $2 = 2$ YES	10. $y = 6x + 7; (2, 21)$ $21 \stackrel{?}{=} 6 \cdot 2 + 7$ $21 \stackrel{?}{=} 12 + 7$ $21 \neq 19$ NO	11. $3x - y = 26; (6, -8)$ $3 \cdot 6 - (-8) \stackrel{?}{=} 26$ $18 - (-8) \stackrel{?}{=} 26$ $26 = 26$ YES

Write the Equation in **Slope-Intercept Form**.

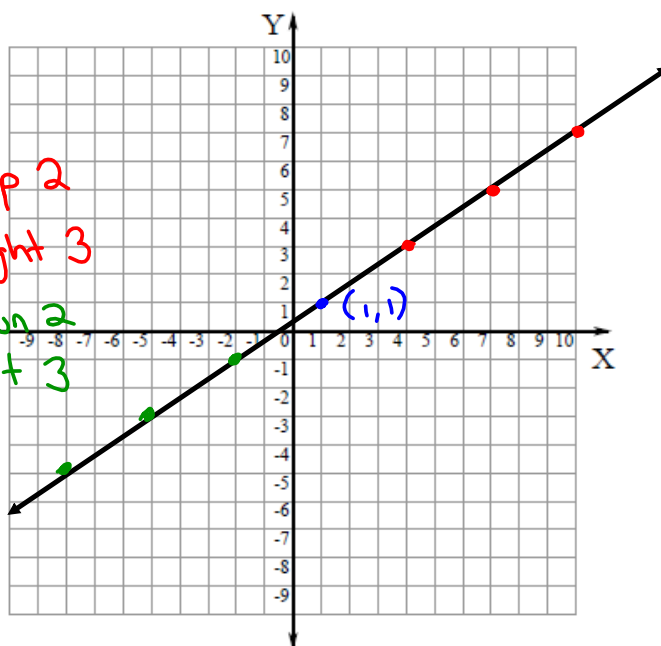
That means solve the equation for y and make it look like $y = mx + b$.

1. $-2x + 3y = 6$ $\frac{+2x \quad +2x}{3y = 2x + 6}$ $y = \frac{2}{3}x + 2$	2. $-x + y = 6$ $\frac{+x \quad +x}{y = x + 6}$	3. $2x = y + 5$ $\frac{-5 \quad -5}{2x - 5 = y}$ $y = 2x - 5$	4. $8x - 4y = 32$ $\frac{-8x \quad -8x}{-4y = -8x + 32}$ $\frac{-4y \quad -4y}{y = 2x - 8}$
5. $x - y = -2$ $\frac{-x \quad -x}{-y = -x - 2}$ $\frac{-y \quad -1}{y = x + 2}$	6. $y = 6 - x$ $y = -x + 6$	7. $1 = 2x - y$ $\frac{+y \quad +y}{y + 1 = 2x}$ $\frac{-1 \quad -1}{y = 2x - 1}$	8. $6x = 10 - y$ $\frac{+y \quad +y}{y + 6x = 10}$ $\frac{-6x \quad -6x}{y = -6x + 10}$

Point - Slope

$$(1, 1); m = \frac{2}{3} \rightarrow \begin{array}{l} \text{up } 2 \\ \text{right } 3 \end{array}$$

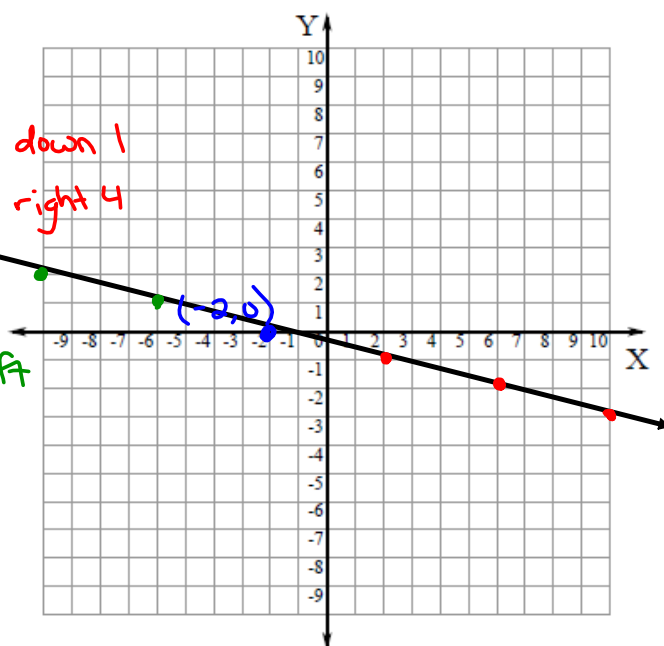
$$m = \frac{-2}{-3} \rightarrow \begin{array}{l} \text{down } 2 \\ \text{left } 3 \end{array}$$



Point - Slope

$$(-2, 0); m = \frac{-1}{4} \begin{array}{l} \text{down 1} \\ \text{right 4} \end{array}$$

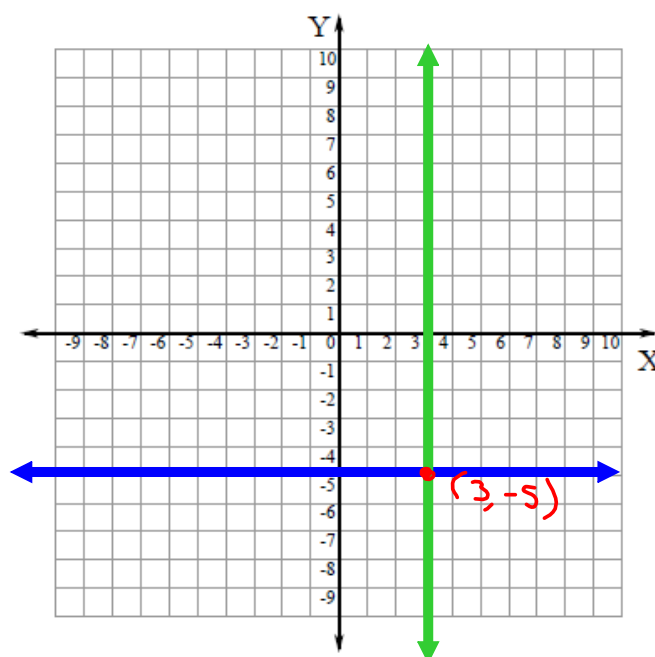
$$m = \frac{1}{-4} \begin{array}{l} \text{1 up} \\ \text{4 left} \end{array}$$



Point - Slope

$(3, -5) ; m = 0$

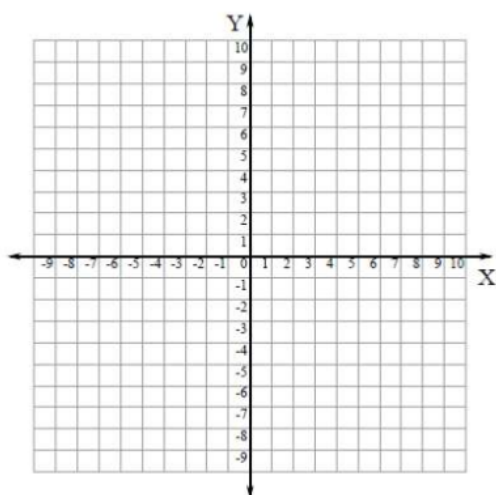
$(3, -5) ; m = \text{undefined}$



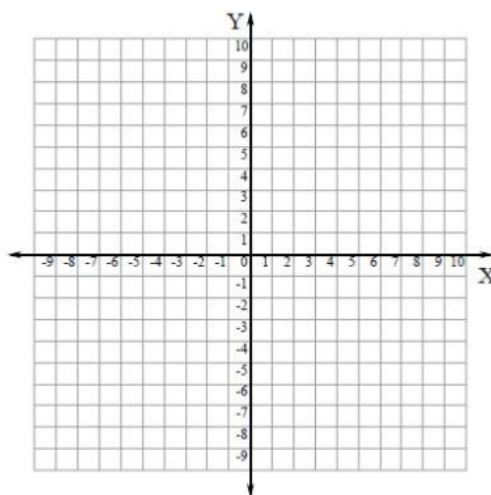
Homework

Use the point and slope to graph the line. (Pg. 625 # 28 - 31)

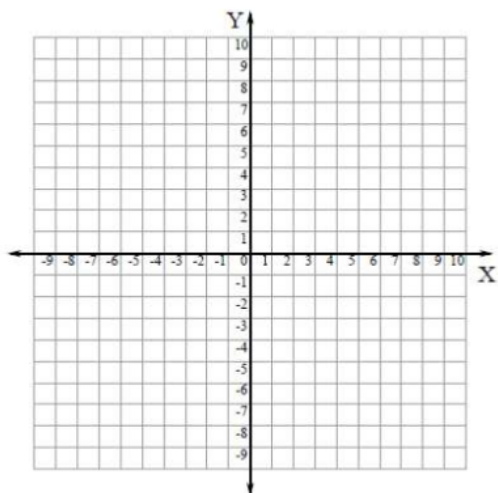
28. $(1, 4); m = 4$



29. $(3, -4); m = 0$



30. $(9, 0); m = \frac{1}{3}$



31. $(-2, 2); m = -\frac{1}{2}$

