

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

Set up your notes

Lesson #10: Point-slope form

Date: September 28

Summary of Objective: I will write the equation of a line in point-slope form

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

Warm Up:

1. Solve for x:  $\frac{3x+5}{2} + 4 = 5$

$$\begin{array}{r} \frac{3x+5}{2} + 4 = 5 \\ -4 \quad -4 \\ \hline \frac{3x+5}{2} = 1 \end{array}$$

$\frac{3x+5}{2} = 1$

$$\begin{array}{r} 3x+5 = 2 \\ -5 \quad -5 \\ \hline 3x = -3 \\ \hline x = -1 \end{array}$$

2. Find the slope between  $(x_1, y_1) = (4, -3)$  and  $(x_2, y_2) = (-9, -5)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - (-3)}{-9 - 4} = \frac{-2}{-13} = \frac{2}{13}$$

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

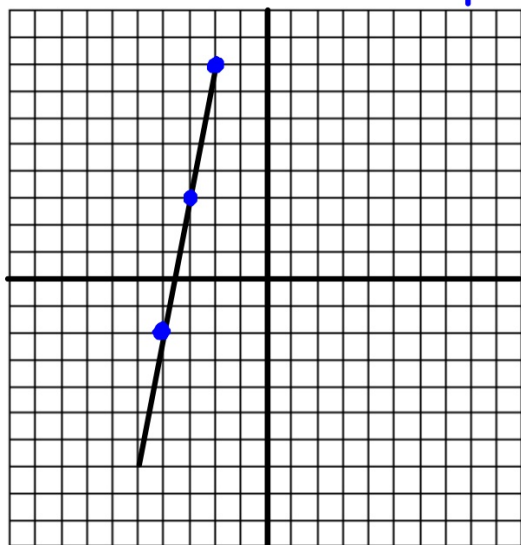
**Planner:**

- 1). Week 6 HW due Fri
- 2). Week 6 Quiz Fri
- 3). Retention Quiz Thurs. (Big Daddy)

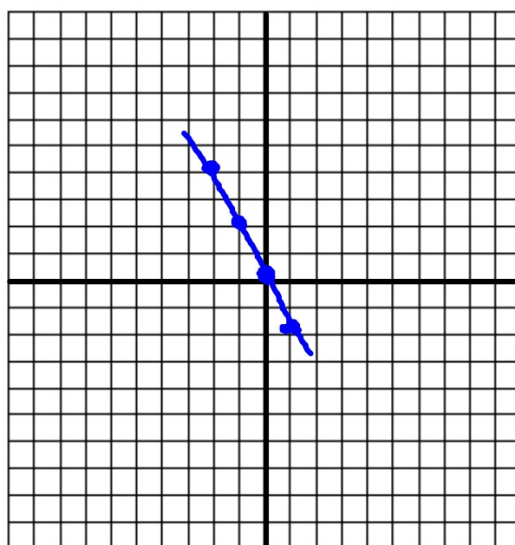
Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

Point  $(-4, -2)$   
and slope of  $5 = \frac{5}{1}$



Point of  $(-2, 5)$   
and a slope  $-2$



Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

There are different ways to write the equation of a line

1. Point-Slope Form  $y - y_1 = m(x - x_1)$   $(x_1, y_1)$ -point  
 $y = y_1 + m(x - x_1)$   $m = \text{slope}$

2. <sup>Slope-Intercept Form</sup> Y-Intercept Form  $y = mx + b$

3. Standard Form  $Ax + By = C$


Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

Lets write the equation of the lines from last week in Point-Slope Form.

1). Given the point  $(1, 2)$  and a slope of  $\frac{4}{5}$

$$y - y_1 = m(x - x_1) \qquad y = y_1 + m(x - x_1)$$
$$y - \underset{+2}{2} = \frac{4}{5}(x - 1) \qquad y = 2 + \frac{4}{5}(x - 1)$$
$$y = 2 + \frac{4}{5}(x - 1)$$

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

2). Point at (0, 4) and a slope of  $-\frac{3}{2}$

$$y - 4 = -\frac{3}{2}(x - 0)$$

$$y = 4 + -\frac{3}{2}(x - 0)$$

$$y = 4 - \frac{3}{2}(x - 0)$$

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

3). Point  $(-4, -2)$  and slope of 5

$$\begin{aligned} y &= -2 + 5(x - -4) & y &= -2 + 5(x + 4) \\ y - -2 &= 5(x - -4) & y + 2 &= 5(x + 4) \\ y &= -2 + 5(x - -4) \end{aligned}$$

4). Point of  $(-2, 5)$  and a slope -2

$$\begin{aligned} y - 5 &= -2(x + 2) \\ y &= 5 - 2(x + 2) \end{aligned}$$

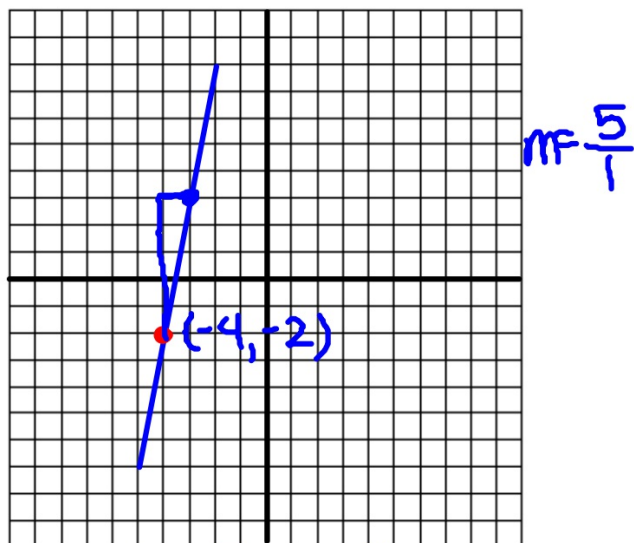
/



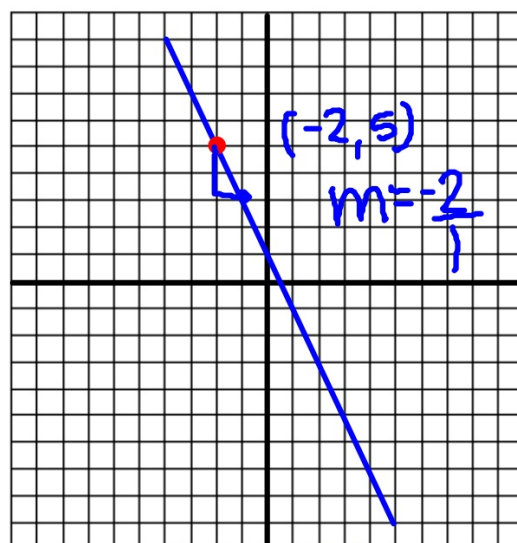
Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

**Identify the point on the line and the slope and write in Point-Slope Form.**



$$\begin{aligned} y + 2 &= 5(x + 4) \\ y - 2 &= 5(x + 4) \end{aligned}$$



$$\begin{aligned} y &= 5 - 2(x + 2) \\ y - 5 &= -2(x + 2) \end{aligned}$$

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---

Objective: SWBAT write the equation of a line in point-slope form from a graph and from being given a point and a slope.

---