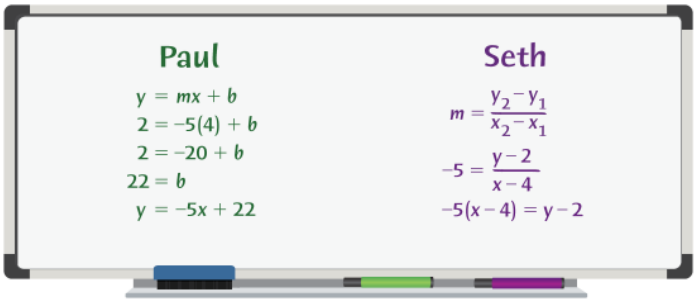
Algebra 1 Name _____

2-2 Point-Slope Form Date _____ **A#5**

Goal:

I. Warm Up: Paul and Seth know that one point on a line is (4, 2) and the slope of the line is −5. Each student wrote a different equation relating x and y.



A. Do the two equations represent the same line? Construct a mathematical argument to support your answer.

B. Generate a table of values for each equation. How can you reconcile the tables with the equations?

$y = -5x + 22$		$-5(x - 4) = y - 2$	
x	y	x	y

II. Review:

Slope-Intercept Form	Vertical line	Horizontal Line

III. Slope Formula and new Form: $m =$ _____

Point-Slope Form

IV. Write an equation in point-slope form

Example 1:	**Try It!**	
A line has a slope of 3 and passes through point $(2,1)$	a. $m=-2, (-3,-5)$	b. $m=\frac{3}{4}, (4,-11)$

V. Write an equation in point-slope form from two points

Example 2: What is the equation of the line in point-slope form that passes through $(4,0)$ and $(-2,1)$?

Steps:

1. Find _____
2. Substitute _____ and one _____ into _____; done
3. Optional: convert to _____

Try It! What is the equation of the line in point-slope form that passes through the given points?

a. $(-3,-2)$ and $(5,3)$

b. $(-5,1)$ and $(3,4)$

VI. Graphing using point-slope form: Graph the line represented by each equation.

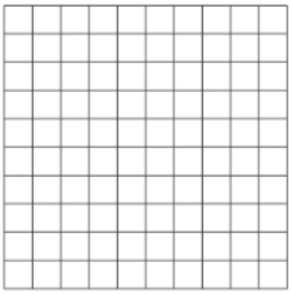
Example 3:

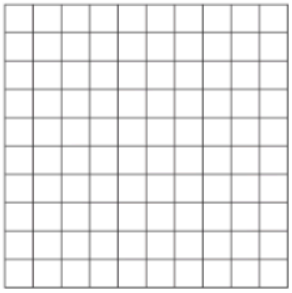
$y-2=2(x+3)$

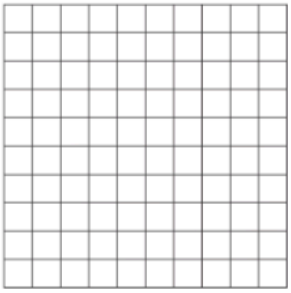
Try It!

a. $y+3=-2(x+1)$

b. $y+1=-\frac{3}{5}(x+5)$







VII. Application

Members of the student council are conducting a fundraiser by selling school calendars. After selling 80 calendars, they had a loss of $360. After selling 200 calendars, they had a profit of $600. Write an equation that describes the relation between *y*, the profit or loss, and *x*, the number of calendars sold. How much profit did they make from selling each calendar? How much would they have lost if they had sold no calendars?