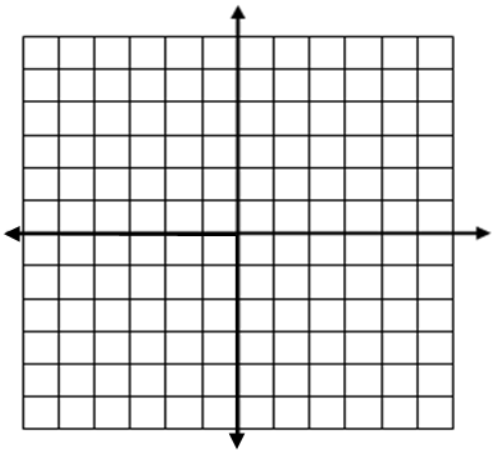
Algebra RH

Essential Question: What is point-slope form of a linear equation?

Do Now:

(a) Graph using a table of values.

$$y-1=\frac{1}{2}(x+2)$$



(b) State the slope of the line.

POINT – SLOPE FORM

The **point-slope form** of an equation derives directly from the equation of the slope of a line.

Key Concepts:

(x, y)	x and y represent all of the points on the line
(x_1, y_1)	represents one point on the line
m	represents the slope of the line

Deriving the Formula:

Writing the equation of a line in point-slope form.

- Given slope and a point.

  Practice:

  (a) m = 2 (2, 5) _____

  (b) m = $\frac{1}{2}$ (-8, -10) _____

  (c) m = -1 (3, 0) _____

  (d) m = $-\frac{3}{4}$ (0, -7) _____

- Given two points.

  Practice:

  (a) (-3, 4) (-6, 10) _____

  (b) (5, -3) (-4, 3) _____

  (c) (-1, 2) (7, 8) _____

  (d) (7, 0) (6, -2) _____

Remember:

A. y = mx + b ←

B. $y - y_1 = m(x - x_1)$ ←

C. 6x - 5y = 10 ←

D. y = # ←

E. x = # ←

Find a Point-Slope equation for a line containing the given point and having the given slope.

1. (6, 2), $m = \frac{2}{9}$

2. (1, 3), m = 1

3. (3, -4), $m = -\frac{4}{3}$

4. (-7, 4), m = 1

5. (9, -5), m = -6

Give the Point-Slope form of the equation that passes through the given points.

6. (1, 5) and (4, 2)

7. (-4, 2) and (1, -3)

8. (-5, -3) and (1, -1)

9. (0, 3) and (-2, 6)

10. (-8, 3) and (-4, 1)