

4.2 Point-Slope Form

**Point-slope Form:

$$y - y_1 = m(x - x_1)$$

↓ Slope ↓ (x₁, y₁)
↓ ↓
↓ ↓

Ex 1) Write equation of the line in point-slope form.

^{x y}
(2, 7); m = -4

$$y - 7 = -4(x - 2)$$

^{x y}
(12, 5); m = $\frac{1}{2}$

$$y - 5 = \frac{1}{2}(x - 12)$$

^{x y}
(4, -5); m = 3

$$y - (-5) = 3(x - 4)$$

$$y + 5 = 3(x - 4)$$

^{x y} and ^{x y}
(4, 7) and (5, 1)

$$m = \frac{7 - 1}{4 - 5} = \frac{6}{-1} = -6$$

$$y - 7 = -6(x - 4)$$

$$y - 1 = -6(x - 5)$$

^{x y} and ^{x y}
(9, -2) and (-3, 2)

$$m = \frac{-2 - 2}{9 - (-3)} = \frac{-4}{12} = -\frac{1}{3}$$

$$y - (-2) = -\frac{1}{3}(x - 9)$$

$$y + 2 = -\frac{1}{3}(x - 9)$$

$$y - 2 = -\frac{1}{3}(x + 3)$$

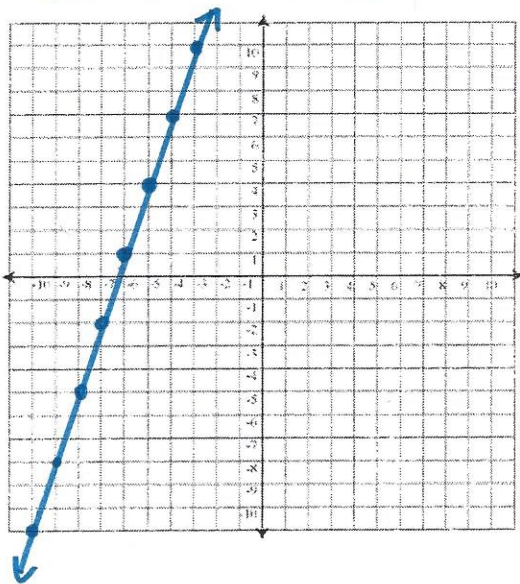
(3, -8) and (7, -2)

Ex 2) Graph the following equations.

$$y - y = m(x - x)$$

$$y - 1 = 3(x + 6)$$

m = 3^② (-6, 1)^①



$$y + 4 = \frac{-5}{2}(x - 3)$$

m = $-\frac{5}{2}$ ^②

(3, -4)^①

