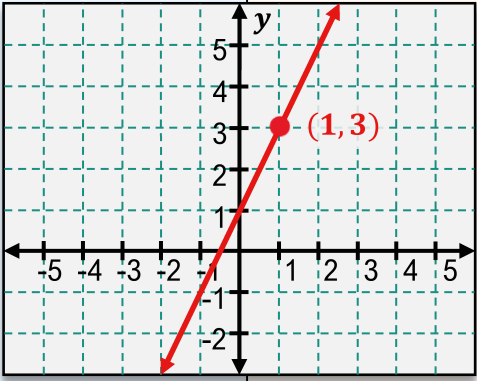


TOPIC: POINT SLOPE FORM

Point-Slope Form of a Line

◆ If asked to write the equation of a line given _____ **point** and the **slope**, use **Point-Slope** Form.

Recall	Slope-Intercept Form	New	Point-Slope Form
	$y = mx + b$ $m = 2 \quad b = 1$ $y = 2x + 1$		$y - y_1 = m(x - x_1)$ $(x_1, y_1) = (_, _) \quad m = _$ $y - _ = _(x - _)$

◆ You may need to convert from **point-slope** to **slope-intercept** form by *distributing* the _____ and solving for y .

EXAMPLE

A line with a slope of $m = 1/2$, passes through the point $(-6, -2)$. What is the equation of the line in (A) Point-Slope Form and (B) Slope-Intercept Form?

TOPIC: POINT SLOPE FORM

PRACTICE

Write each equation in point-slope form and convert to slope-intercept form.

(A)

Slope: $m = 4$; Point: $(1, -2)$

(B)

Slope: $m = -\frac{3}{2}$; Point: $(0, 5)$

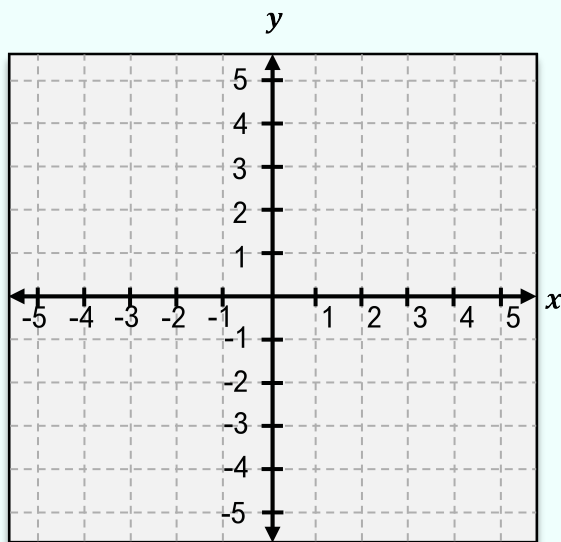
(C)

Slope: $m = \frac{1}{3}$; Point: $(-2, 4)$

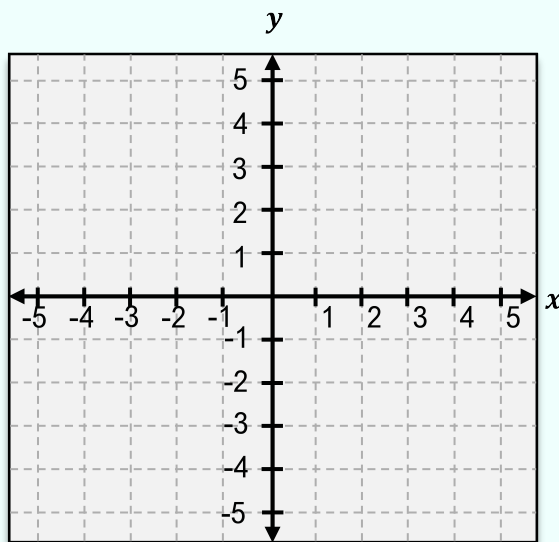
EXAMPLE

Graph each line passing through the given point with the given slope.

(A) Through $(3, -1)$; slope $= 2$



(B) Through $(-2, 5)$; slope $= -\frac{1}{4}$



TOPIC: POINT SLOPE FORM

Finding the Equation of a Line Given 2 Points

◆ Recall: We can find the eqn of a line using any **point** and the **slope** (m) w/ point-slope form.

Recall

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

► If instead given ____ **points**, use them to calculate the **slope** (m), then plug in m & _____ **point**.

New

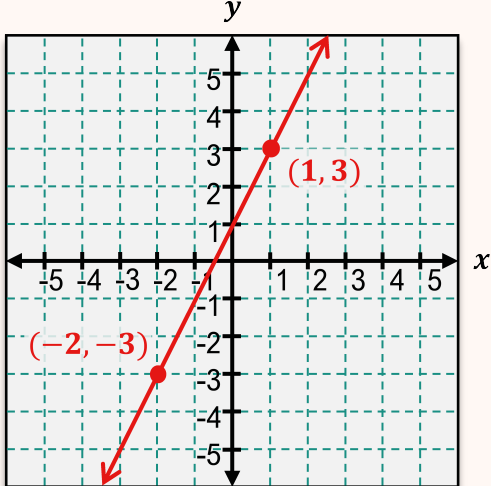
Equation of a Line Given 2 Points

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

$$m = \frac{\Delta y}{\Delta x} = \frac{\quad}{\quad} = \quad$$

$$(x_1, y_1) = \quad$$

$$y - \quad = \quad (x - \quad)$$



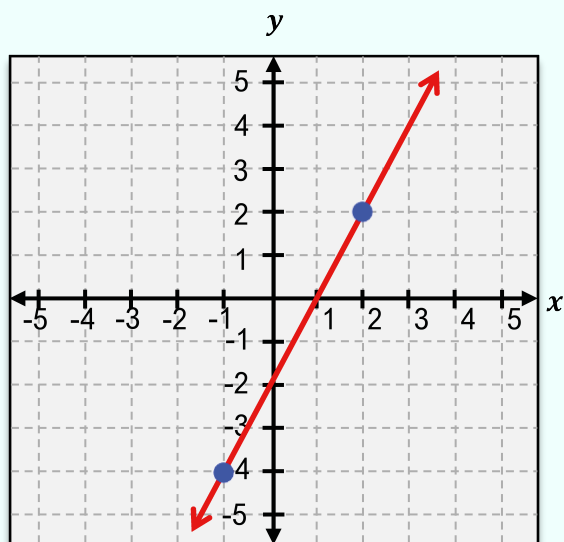
◆ Recall: Convert from **point-slope** to **slope-intercept** form ($y = mx + b$) by distributing the slope & solving for y .

TOPIC: POINT SLOPE FORM

EXAMPLE

Find the equation of each line. Write in point-slope form.

(A)



(B)

