

Algebra 1

4.3

$$y = mx + B$$

Write equations of lines in point-slope form

Write linear equations in different forms

slope-intercept form

$$y = mx + B$$

→ point-slope form

standard form

$$Ax + By = C$$

Quiz 4.1-4.2

activity: cut & paste

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$1(y_2 - y_1) = m(x_2 - x_1)$$

Key Concept Point-Slope Form

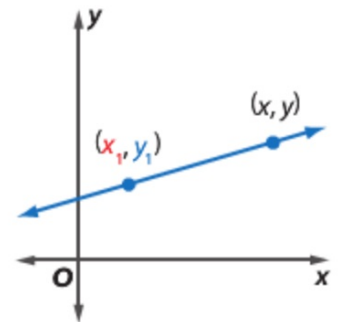
Words

The linear equation $y - y_1 = m(x - x_1)$ is written in point-slope form, where (x_1, y_1) is a given point on a nonvertical line and m is the slope of the line.

Symbols

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

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



Cut & paste activity

$$y + 3 = 2(x - 4)$$

$$y - 5 = 3(x + 1)$$

$$y - 2 = -3(x + 5)$$

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

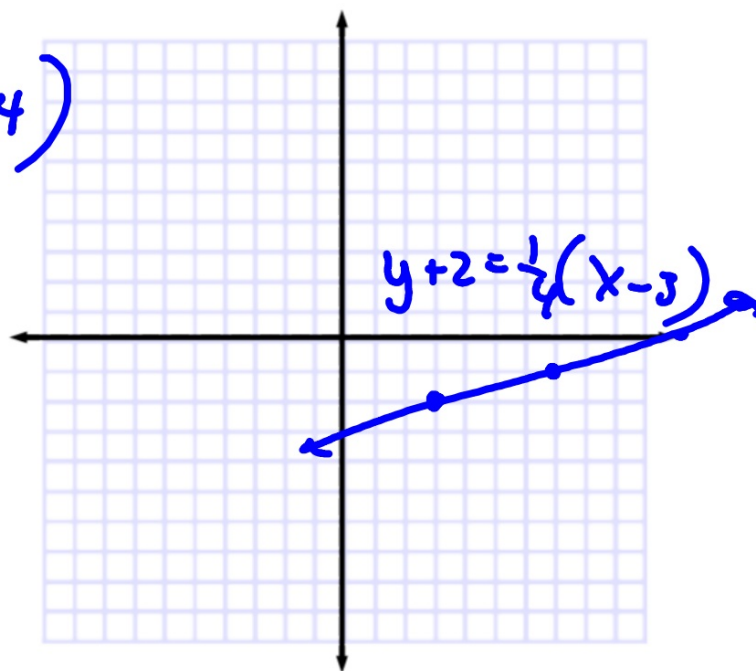


Example 1 Write and Graph an Equation in Point-Slope Form

Write an equation in point-slope form for the line that passes through ~~(2, 2)~~ with a slope of ~~3~~. Then graph the equation.

(4, 1)

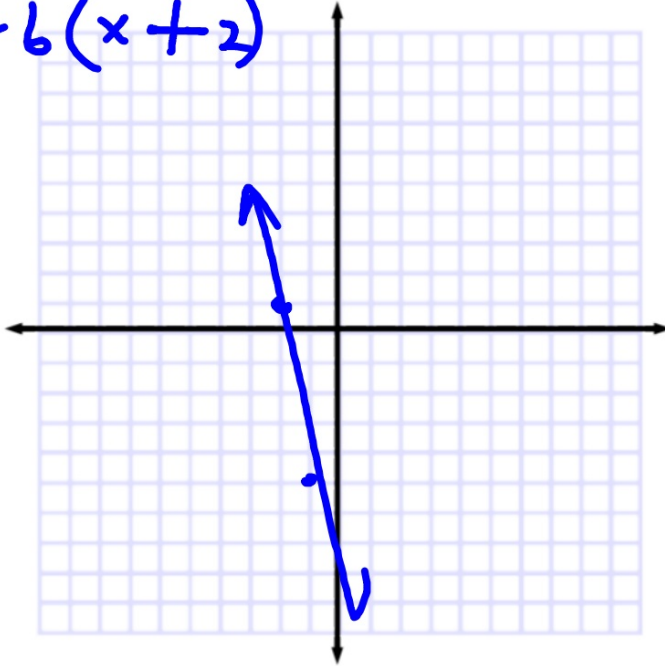
$$y - 1 = \frac{1}{2}(x - 4)$$



Guided Practice

1. Write an equation in point-slope form for the line that passes through $(-2, 1)$ with a slope of -6 . Then graph the equation.

$$y - 1 = -6(x + 2)$$

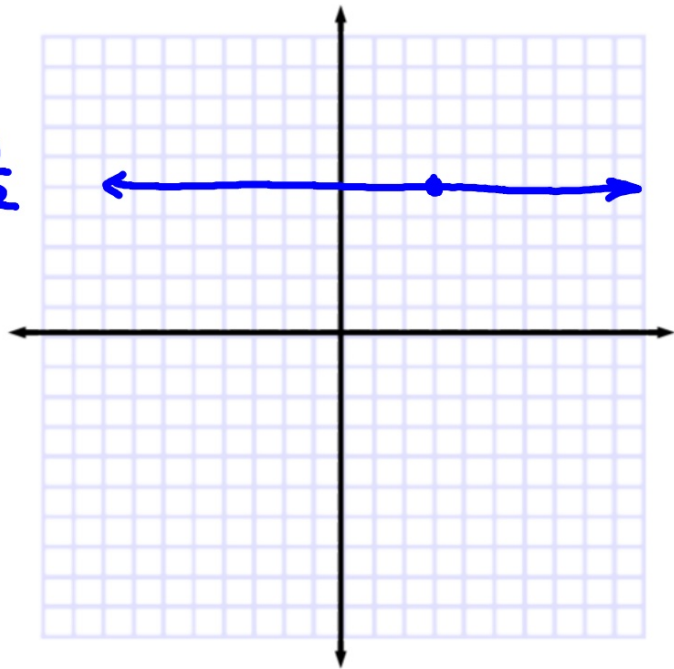


Slope is 0 passing through (3,5)
What kind of line is it?
Graph first, then write equation (easier)

$$m = 0$$

$$* y - 5 = 0(x - 3)$$

$$y - 5 = 0 \rightarrow y = 5$$

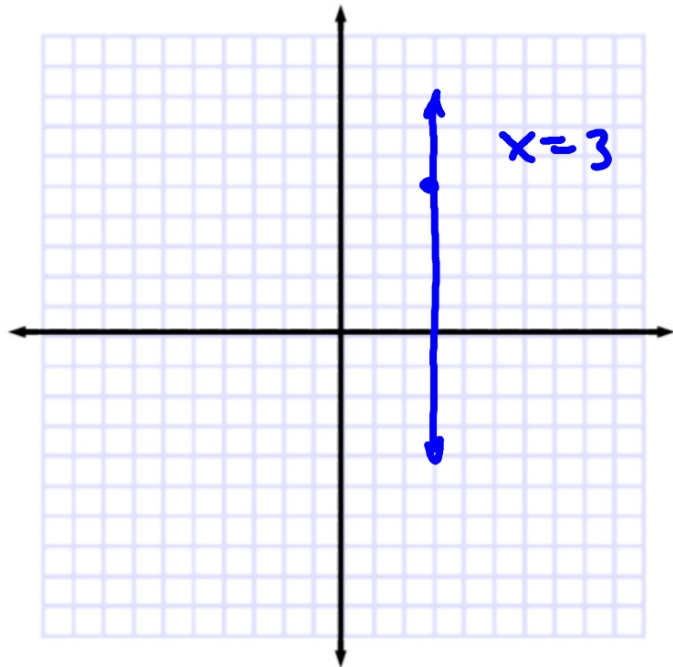


vertical

Slope is undefined passing through (3,5)
What kind of line is it?

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

NS



$$y - \bar{y} = m(x - \bar{x})$$