

Algebra 1 4.3

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

$$Ax + By = C$$

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

Quiz 4.1-4.2 Fri.

$$y + 3 = 2(x - 4) \quad y - 5 = 3(x + 1)$$

$\uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow$

Key Concept Point-Slope Form

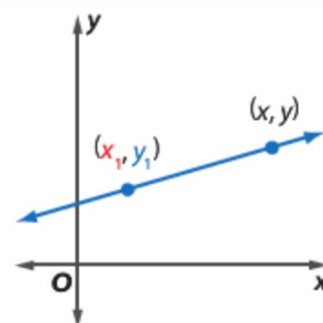
Words

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

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

$\uparrow$

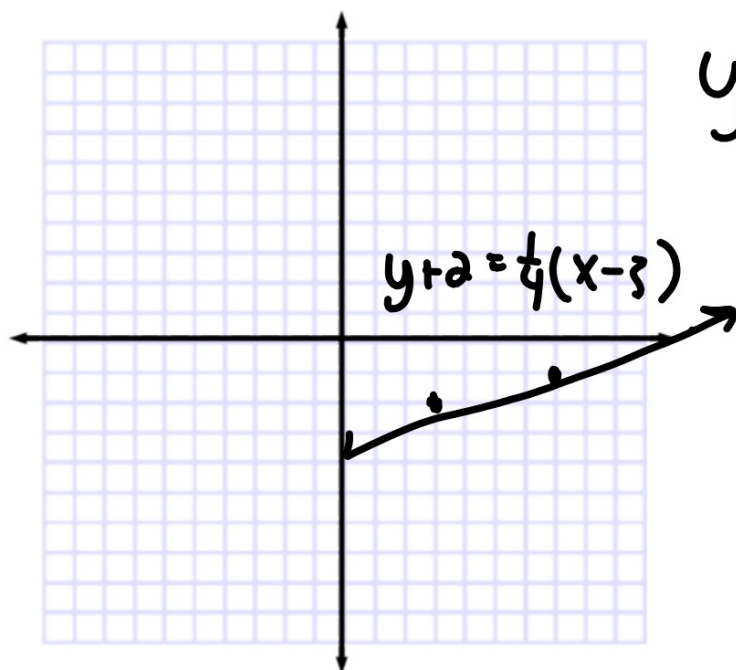


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Example 1 Write and Graph an Equation in Point-Slope Form

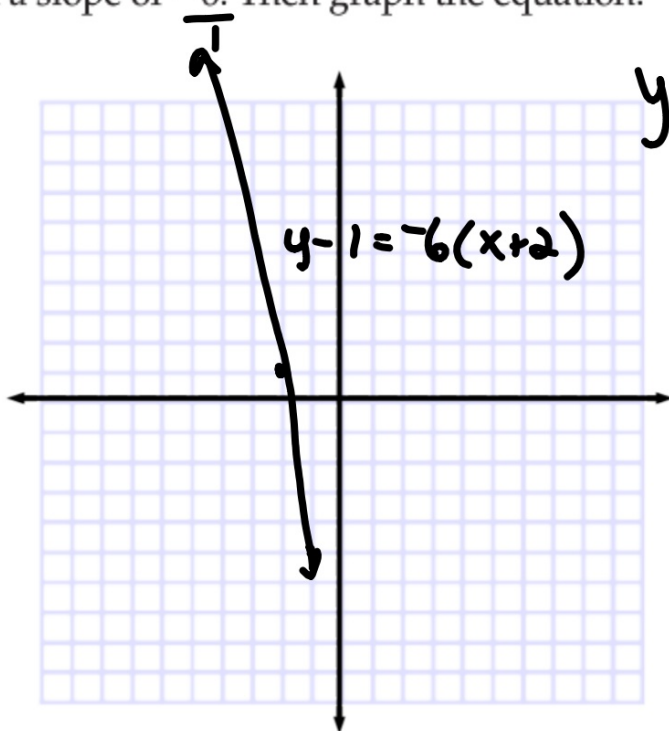
Write an equation in **point-slope form** for the line that passes through $(3, -2)$ with a slope of $\frac{1}{4}$. Then graph the equation.



$$y + 2 = \frac{1}{4}(x - 3)$$
$$\underline{\frac{1}{4}x - 3}$$

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.



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

horiz. line



Slope is 0 passing through (3,5)

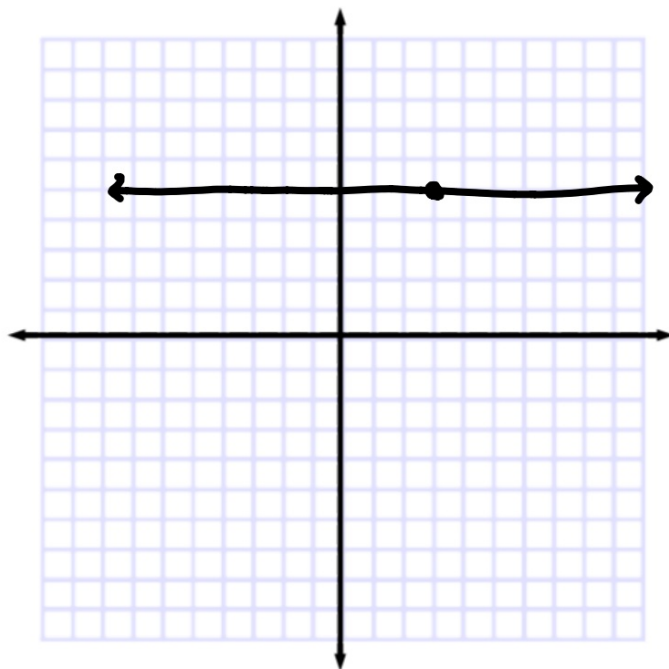
What kind of line is it?

Graph first, then write equation (easier)

$$y = 5$$

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

$$y - 5 = 0$$



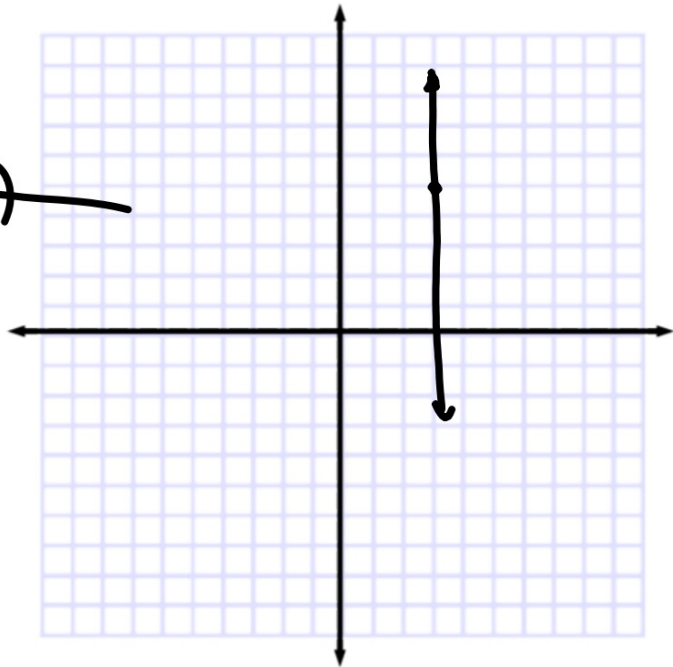
vert line



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

$$x = 3$$

~~$y - 5 = \text{undef}(x - 3)$~~



Std. Form

$$Ax + By = C \quad \text{skip}$$

4.3 11-4/odd

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