Algebra 1 4.3 $y = mx + B$

Write equations of lines in point-slope form

Write linear equations in different forms

- slope-intercept form
- point-slope form
- standard form

activity: cut & paste

s.i. o.p. o.p.

p.s. $y - y_1 = m(x - x_1)$

Slope

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

Quiz 4.1-4.2 today

$y - -2 = \frac{1}{2}(x - 6)$

$y + 2 = \frac{1}{2}(x - 6)$

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

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

point-slope

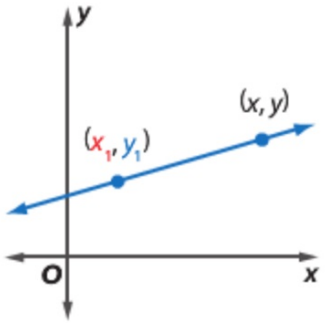
$y - 5 = 3(x - -1)$

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

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



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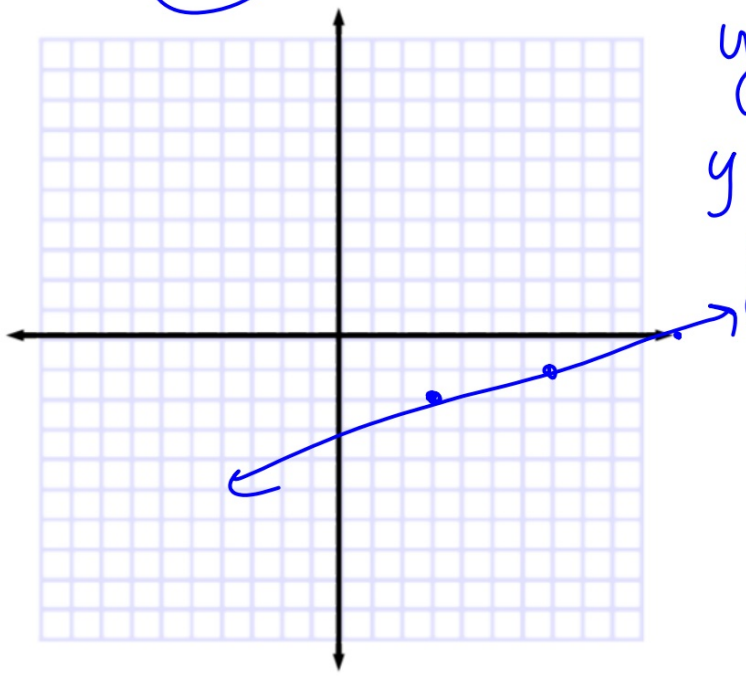
Example 1 Write and Graph an Equation in Point-Slope Form

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.



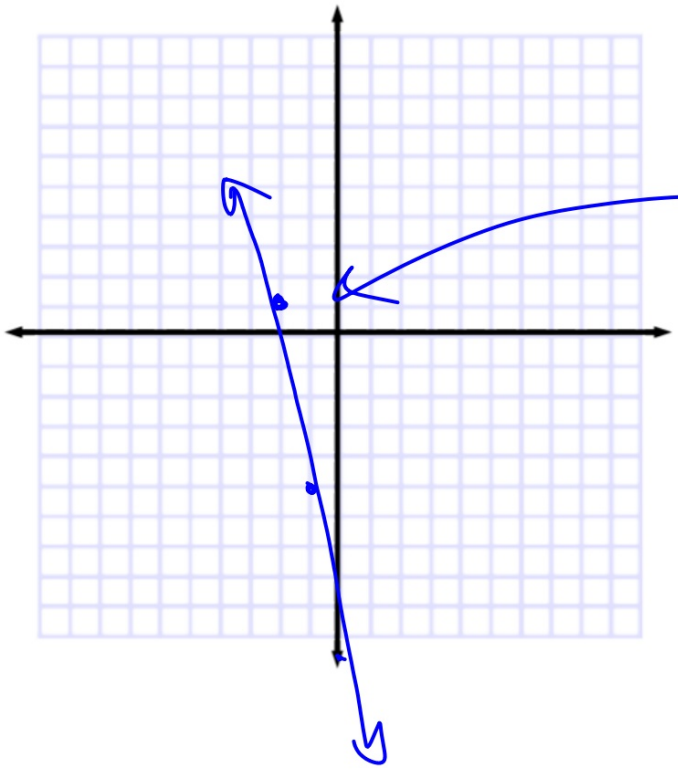
$y - y_1 = m(x - x_1)$

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

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

GuidedPractice

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.



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

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

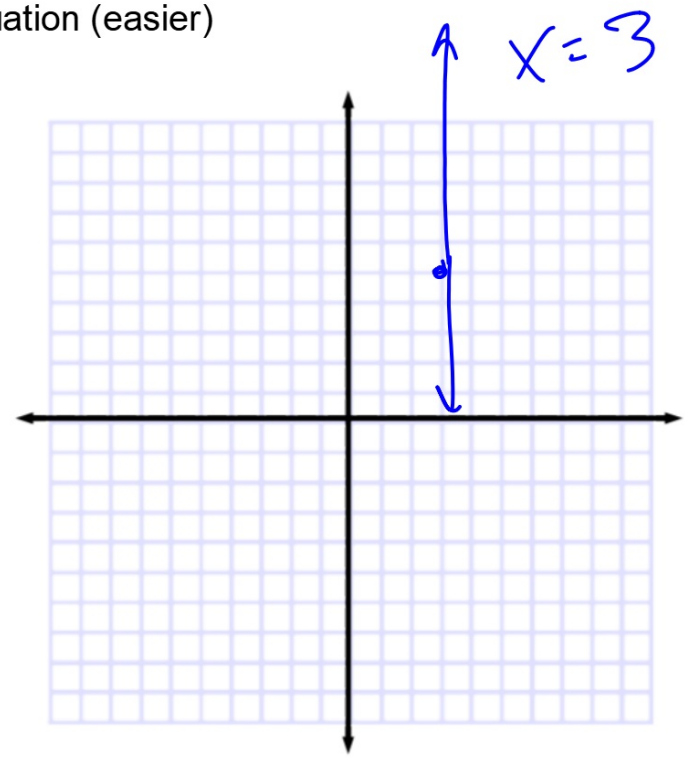
undef. slope

~~Slope is 0~~ passing through (3,5)

What kind of line is it?

Graph first, then write equation (easier)

$y = 5$



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