Name: _____ Acc Alg

**5.3: Write Linear Equations In Point-Slope Form**

**Goals:** *Write an equation of a line in point-slope form given a point and slope
*Graph an equation of a line written in point-slope form
*Write an equation of a line given two points

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**Point-Slope Form:** a way to write an equation of a line in the form: $y - y_1 = m(x - x_1)$

**Write an equation in point-slope form given a point and the slope:**

**Ex:** $(4, -3)$, $m = 2$

$y - y_1 = m(x - x_1)$
$y - (-3) = 2(x - 4)$
$y + 3 = 2(x - 4)$

**Ex:** $(-1, 4)$, $m = -2$

$y - y_1 = m(x - x_1)$
$y - (-1) = -2(x - (-1))$
$y + 1 = -2(x + 1)$

**Ex:** $(-3, 1)$, $m = 3$

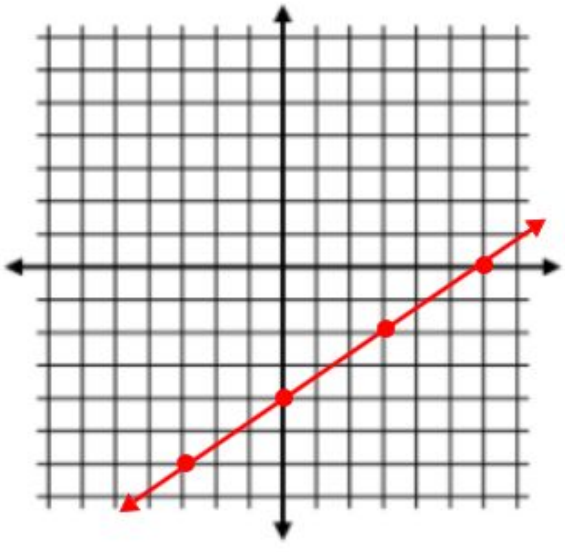
$y - y_1 = m(x - x_1)$
$y - (-3) = 3(x - 1)$
$y + 3 = 3(x - 1)$

**Ex:** $(3, 7)$, $m = -1$

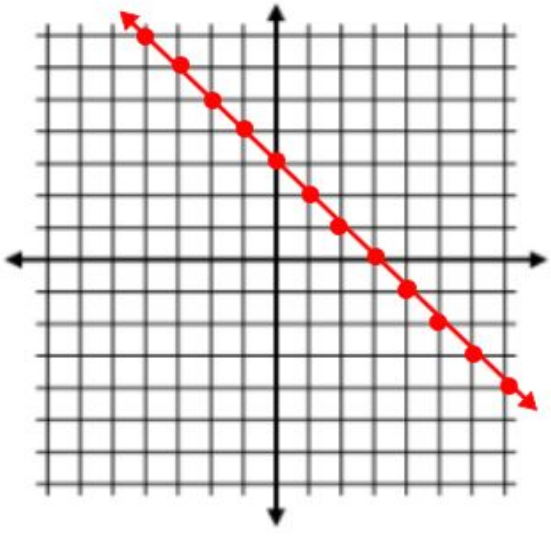
$y - y_1 = m(x - x_1)$
$y - 7 = -1(x - 3)$
$y - 7 = -1(x - 3)$

**Graph an equation in point-slope form:**

**Ex:** $y + 2 = \frac{2}{3}(x - 3)$



**Ex:** $y - 1 = -(x - 2)$



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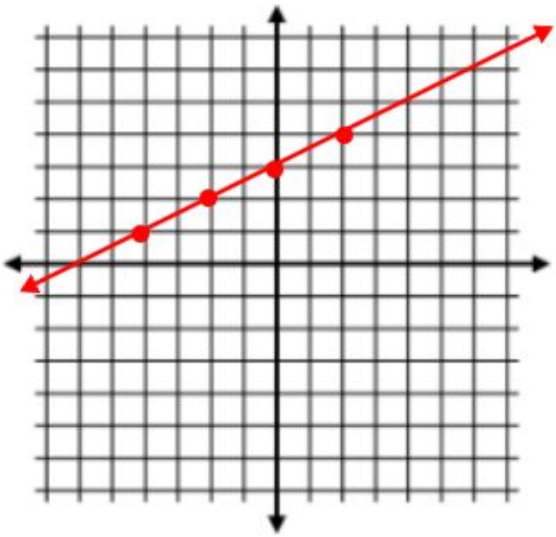
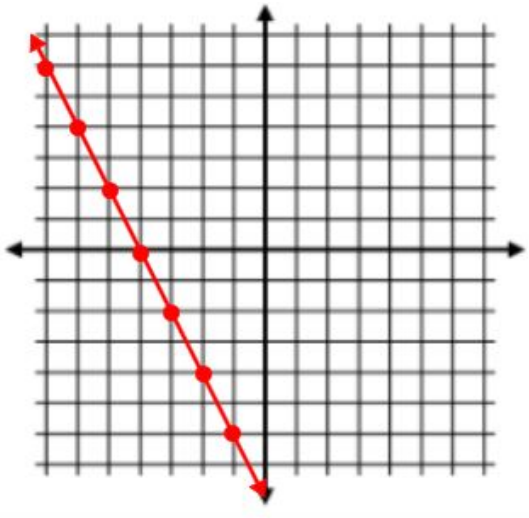
**Ex:** $y-2=\frac{1}{2}(x+2)$



**Ex:** $y+4=-2(x+2)$



**Write the equation of the line in point-slope form given two points:**

**Ex:** $(-1,\ 3),\ (1,\ 1)$

$m=\frac{1-3}{1--1}=\frac{-2}{2}=-1$

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

**Ex:** $(-2,\ 3),\ (1,\ -3)$

$m=\frac{-3-3}{1--2}=\frac{-6}{3}=-2$

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

**Ex:** $(2,\ 3),\ (4,\ 4)$

$m=\frac{4-3}{4-2}=\frac{1}{2}$

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