

6.4 Point-Slope Form and Writing Linear Equations

Point-Slope form is easiest to write when you know a point and the slope (hence the name!!)

Point-Slope Form is:

$$y - k = m(x - h)$$

(h, k) is the point, and m is the slope.

To write an equation in point-slope form, plug the point into k and h and the slope in for m. Be careful with the negatives!!

$$y - k = m(x - h)$$

Write the equation for the line that has a slope of -3 that passes through the point (-1, 7).

$$y - 7 = -3(x - (-1))$$

$$y - 7 = -3(x + 1)$$

Write the equation for the line that has a slope of $\frac{2}{5}$ that passes through the point (10, -8)

$$y - (-8) = \frac{2}{5}(x - 10)$$

$$y + 8 = \frac{2}{5}(x - 10)$$

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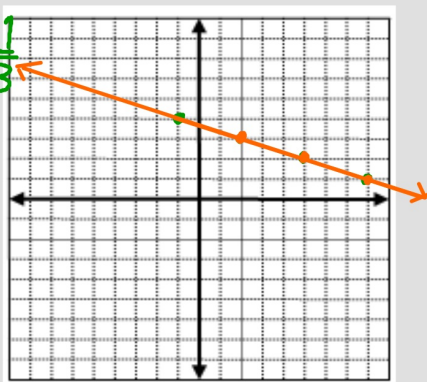
If you have two points, you can find the slope. Then use the slope and either point to write the slope-intercept form of the line.

Write an equation for the line that passes through (-1, 4) and (2, 3).

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

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

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



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