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

standard form $Ax + By = C$

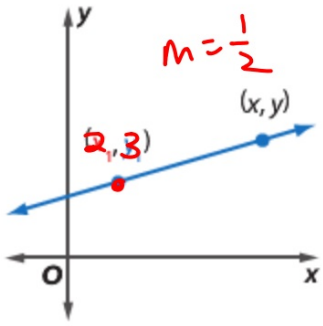
speed dating

$y = mx + B$ ∴ $Ax + By = C$

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



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

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

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

$+3 \quad +3$

$y = \frac{1}{2}x + 2$

2. $y = \frac{1}{2}x + 2$

$2y = x + 4$

$-x \quad -x$

$-x + 2y = 4$

$-1 \quad -1 \quad -1$

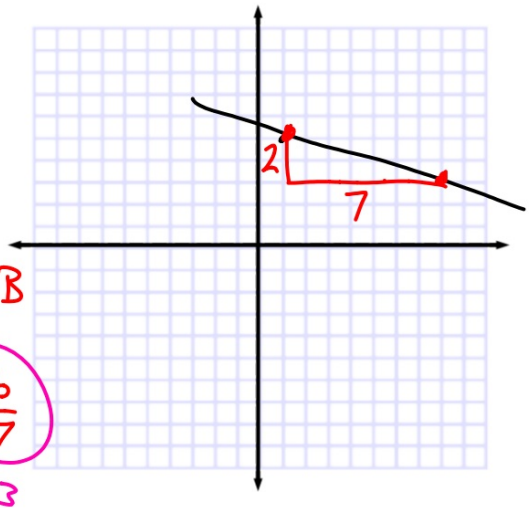
$1x - 2y = -4$

$A = 1 \quad B = -2$

$C = -4$

Write the equation of the line passing through (1,5) and (8,3).

$m = -\frac{2}{7}$



a) point-slope form

$y - 3 = -\frac{2}{7}(x - 8)$

b) slope-intercept form

$y = mx + B$

$y = -\frac{2}{7}x + \frac{37}{7}$

$(y) - 3 = \left(-\frac{2}{7}x\right) + \left(\frac{16}{7}\right)$

$+3 \qquad +3$

c) standard form

$Ax + By = C$

$7y = -2x + 37$

$+2x \qquad +2x$

$2x + 7y = 37$

Standard form

- *In order*
- *Only integers (no fractions, no decimals)*
- *No GCF*
- *First term positive*

ICE WS (due today end of class)