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

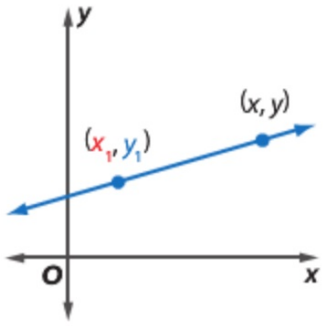
standard form $Ax + By = C$

speed dating

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

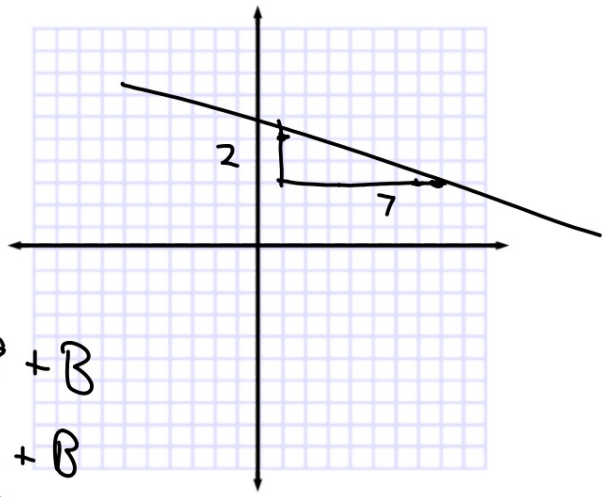


$m = -\frac{2}{7}$

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

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

a) point-slope form



b) slope-intercept form

$y = -\frac{2}{7}x + 5\frac{2}{7}$

$3 = -\frac{2}{7} \cdot 8 + B$

$3 = -2\frac{2}{7} + B$

$+2\frac{2}{7} \quad +2\frac{2}{7}$

$5\frac{2}{7} = B$

c) standard form

$7 \cdot y = 7 \cdot \left(-\frac{2}{7}\right)x + 7 \cdot 5\frac{2}{7}$

$7y = -2x + 37$

$+2x \quad +2x$

$2x + 7y = 37$

Standard form

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

A

$2x+7y=37$

$A=2 \quad B=7 \quad C=37$

$\frac{-3x}{-1}+\frac{5y}{-1}=\frac{7}{-1}$

$3x-5y=-7$

$\frac{2x}{2}+\frac{10y}{2}=\frac{14}{2}$

$x+5y=7$