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

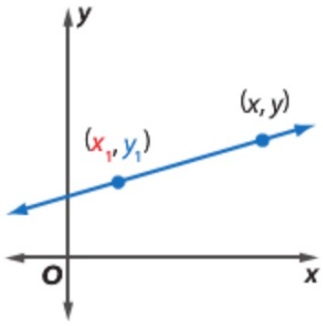
standard form $Ax + By = C$

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



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

a) point-slope form

$m =$ $y - 5 = -\frac{2}{7}(x - 1)$

b) slope-intercept form

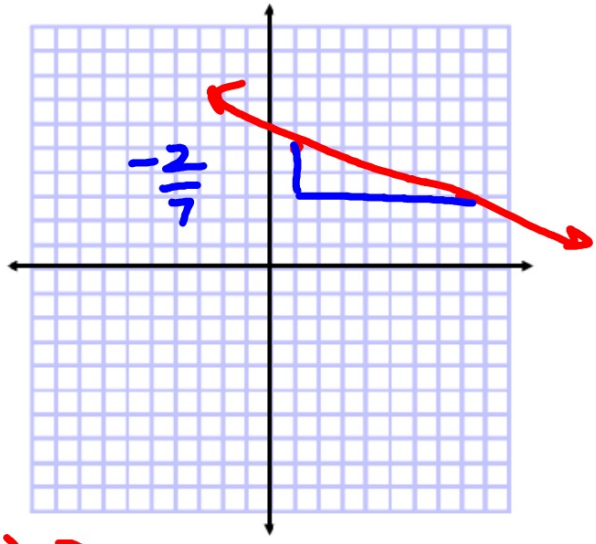
$7 \cdot y = -\frac{2}{7}x + 5 \cdot 7$

c) standard form

$7y = -2x + 37$

$+2x \quad +2x$

$2x + 7y = 37$



1) PS
2) SI
3) ST

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

$\frac{-8}{4} = -2$

a) point-slope form

$y - 3 = -2(x - 1)$

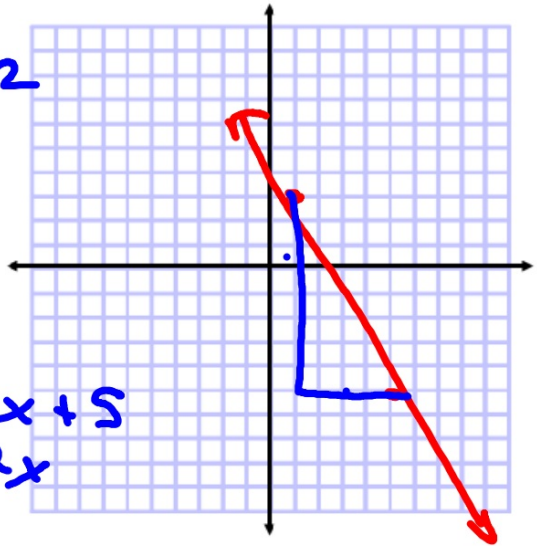
b) slope-intercept form

$y = -2x + 5$

$+2x \quad +2x$

c) standard form

$2x + y = 5$



$-3x + y = 7$

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

$3x - y = -7$

Write the equation of the line passing through (0, 6) and (8,-2).

a) point-slope form

$y+2=-1(x-8)$

$y-6=-1(x-0)$

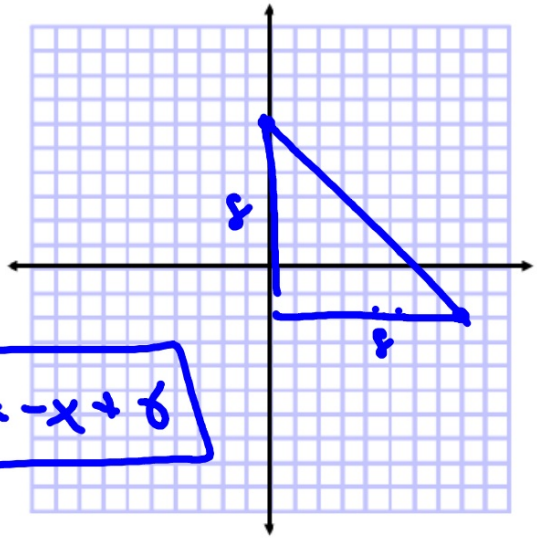
b) slope-intercept form

$y+2=-x+8$

$-2 \quad -2$

$y=-x+6$

c) standard form



Speed dating

P-S

S-i $y = \frac{4}{3}x + 4$

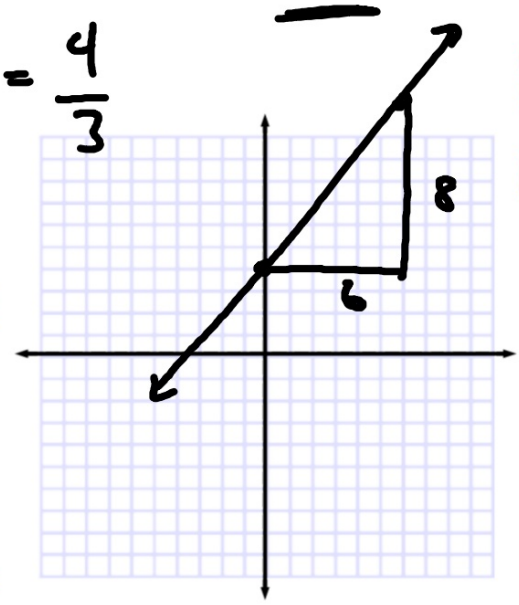
St

$y - 4 = \frac{4}{3}(x - 0)$

$y - 12 = \frac{4}{3}(x - 6)$

$(0,4)$ $(6,12)$ *

$m = \frac{8}{6} = \frac{4}{3}$



$y = \frac{4}{3} \cdot x + B$

$12 = \frac{4}{3} \cdot 6 + B$

$12 = 8 + B$

$-8 \quad -8$

$B = 4$

3. $y = 3 \cdot \frac{4}{3}x + 4$

$3y = 4x + 12$

$-4x \quad -4x$

$-4x + 3y = 12$

$\frac{-4x}{-1} + \frac{3y}{-1} = \frac{12}{-1}$

$4x - 3y = -12$