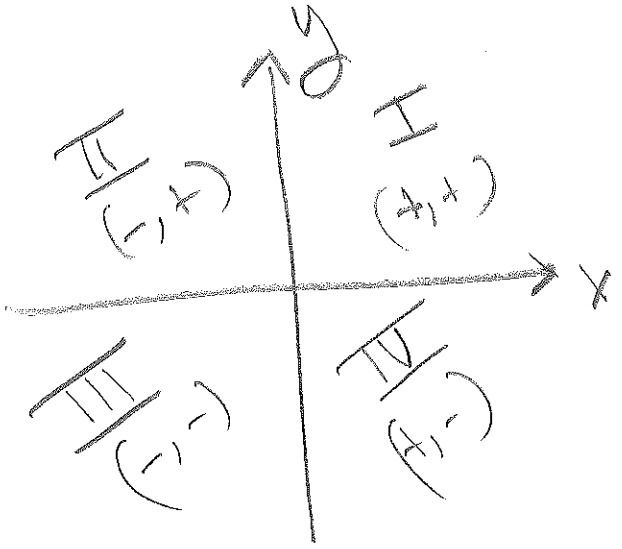
8/30/16

Linear Review

Graph:



Eqn* of a line

① slope-intercept: $y = mx + b$ (m → slope, b → y-intercept)

② Standard form: $Ax + By = C$

③ Point slope form: $y - y_1 = m(x - x_1)$

*Eqn = equation

Slope + Distance Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

ex) find distance btwn $(1, 2)$ and $(5, -3)$ (x_1, y_1 and x_2, y_2)

$$d = \sqrt{(5-1)^2 + (-3-2)^2}$$

$$= \sqrt{16 + 25}$$

$$= \sqrt{41}$$

ex) find the slope of the line that goes through $(1, 2)$ and $(5, -3)$ (x_1, y_1 and x_2, y_2)

$$m = \frac{y_2 - y_1}{x_2 - x_1} \qquad m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$= \frac{-3-2}{5-1} = \frac{-5}{4}$$

Write the eqn of the line that goes through $(2,3)$ and $(-4,5)$
$x_1\ y_1$ $x_2\ y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{5-3}{-4-2} = \frac{2}{-6} = -\frac{1}{3}$$

use pnt-slope form

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

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

$+3$ $+3$

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

$\frac{1}{3} \cdot \frac{2}{1} = \frac{2}{3}$

$$= -\frac{1}{3}x + \frac{2}{3} + 3 \qquad \frac{3}{1} \cdot \frac{3}{3} = \frac{9}{3}$$

$$= -\frac{1}{3}x + \frac{2}{3} + \frac{9}{3}$$

$$\boxed{y = -\frac{1}{3}x + \frac{11}{3}}$$

F3: Assignment is #11-35 odd