

February 9, 2015
 9.1/3.2/3.3/3.4

Linear Formulas

- ① Slope (m) $m = \frac{y_2 - y_1}{x_2 - x_1}$
- ② Standard Form
 $ax + by = c$
 $a, b, c \in \mathbb{Z}$
- ③ Slope-Intercept
 $y = mx + b$
 or
 $f(x) = mx + b$
 $m = \text{slope}$
 $b = \text{y-intercept} = (0, b)$
- ④ Point-Slope
 $y - y_1 = m(x - x_1)$
 $m = \text{slope}$
 (x_1, y_1) is a given point

Feb 9-10:03 AM

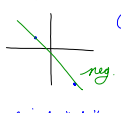
Slope-Intercept: $y = mx + b$

Steps to find the equation to a line given two ordered pairs (Points).

- ① Quick Graph to determine positive/negative slope
- ② Calculate slope
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
- ③ Find "b" of $y = mx + b$
- ④ Write the equation
 a) in Slope-Intercept form
 b) in Standard form
- ⑤ Check equation using the other point.

Feb 9-10:11 AM

$(-5, 3) \neq (6, -11)$

- ① 
- ② $m = \frac{-11 - 3}{6 - (-5)}$
 $m = -\frac{14}{11}$
- ③ find "b"
 $y = mx + b$
 $(3) = -\frac{14}{11}(-5) + b$
 $\frac{3}{11} = \frac{70}{11} + b$
 $\frac{3}{11} - \frac{70}{11} = b$
 $\frac{-67}{11} = b$
- ④ a) $y = mx + b$
 $y = -\frac{14}{11}x - \frac{67}{11}$
 b) S.F. $ax + by = c$
 $11(y = -\frac{14}{11}x - \frac{67}{11})$
 $11y = -14x - 67$
 $14x + 11y = -67$

Feb 9-10:17 AM

Check $y = -\frac{14}{11}x - \frac{37}{11}$ ✓
 using $(6, -11)$

$$-11 = \left[-\frac{14}{11} \cdot 6\right] - \frac{37}{11}$$

$$= -\frac{84}{11} - \frac{37}{11}$$

$$-11 = \frac{-84 - 37}{11} = \frac{-121}{11}$$

$$-11 = -11 \checkmark$$

Feb 9-10:29 AM

- ① $(-9, 12) \neq (0, 10)$
- ② $(-6, 4) \neq (11, -1)$
- ③ $(-7, -8) \neq (-9, -4)$
- ④ $(5, -6) \neq (-2, 8)$

Feb 9-10:39 AM