

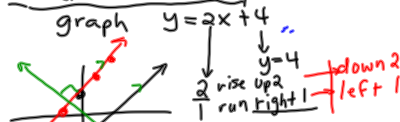
Unit 4

$y = mx + b$ → Equation of a Line

slope y-intercept

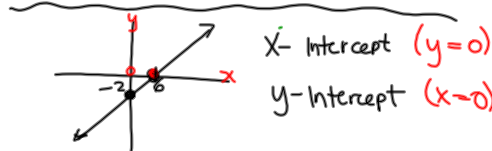
= $\frac{\text{rise}}{\text{run}}$
 = rate of change
 = $\frac{y_2 - y_1}{x_2 - x_1}$
 = $\frac{\Delta y}{\Delta x}$

$(3, 4)$	$(6, -8)$
x_1, y_1	x_2, y_2
x_2, y_2	x_1, y_1



parallel Slopes are the same

perpendicular Slopes are *negative reciprocals



(*) $2x - 6y = 12$

x-Int ($y = 0$):
 $2x - 6(0) = 12$
 $2x = 12$
 $x = 6$

y-Int ($x = 0$):
 $2(0) - 6y = 12$
 $-6y = 12$
 $y = -2$

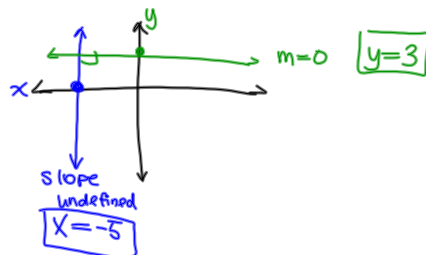
Standard form $AX + By + C = 0$

$y = \frac{2}{3}x + 5$

$0 = \frac{2}{3}x - \frac{3}{3}y + 15$

$0 = 2x - 3y + 15$

$x(A) \rightarrow$ positive
 * No fractions



Finding the Equations $y = mx + b$

→ line passing through (x_1, y_1) and (x_2, y_2)

(Always) EQAD Open Response

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{-5 - (-2)}{8 - 6}$ $m = \frac{-3}{2}$	Choose a point $(8, -5)$ $m = -\frac{3}{2}$ $y = mx + b$ $-5 = -\frac{3}{2}(8) + b$ $-5 = -12 + b$ $-5 + 12 = b$ $7 = b$	
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$y = -\frac{3}{2}x + 7$