

T-A2 Algebra 2 Week 10 11/8

1.) $y = -\frac{2}{3}x + 5$

- 1.) Plot y-int
- 2.) Use slope for next pt.

slope-intercept

$m = -\frac{2}{3}$

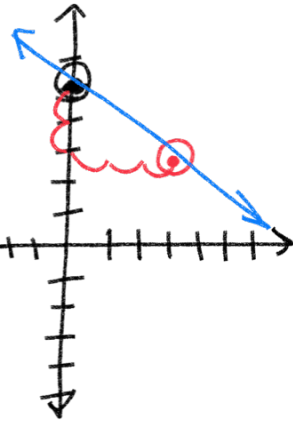
y-int: 5

$y = mx + b$

slope

y-intercept

$m = -\frac{2}{3} = \frac{2 \text{ down}}{3 \text{ right}}$



2.) $2x - 5y = 10$

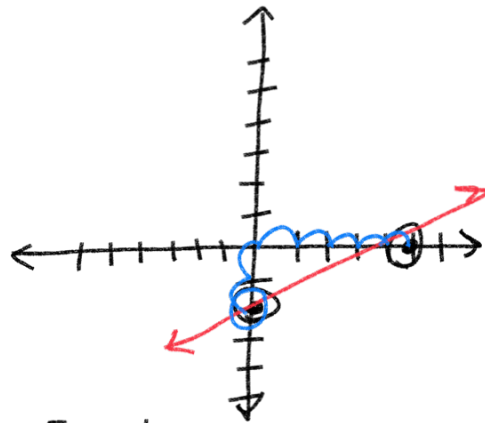
standard form
 $Ax + By = C$

1.) Intercept Strat

~~$2x - 5y = 10$~~

$x = 0$ $-5y = 10$ $y = -2$
 $\frac{-5y}{-5} = \frac{10}{-5}$ $(0, -2)$

$y = 0$ $2x - 5y = 10$ $x = 5$
 $\frac{2x}{2} = \frac{10}{2}$ $(5, 0)$



$2x - 5y = 10$
 $-2x$ $-2x$

$-5y = \frac{-2x + 10}{-5}$

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

y-int
 $\frac{2 \text{ up}}{5 \text{ right}}$

Find the slope between

$(2, 3)$ and $(5, -6)$

slope = $\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$

$\frac{-6 - 3}{5 - 2} = \frac{-9}{3} = \boxed{-3}$

$\frac{3 - (-6)}{2 - 5} = \frac{9}{-3} = \boxed{-3}$

$$\boxed{m = 4} \quad \begin{matrix} x & y \\ (-2, & 6) \end{matrix}$$

① Point-Slope Form

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

$$y - 6 = 4(x - (-2))$$

$$y - 6 = 4(x + 2)$$

$$y - 6 = 4x + 8$$

$$\boxed{y = 4x + 14}$$

② Slope-Intercept

$$y = mx + b$$

$$6 = (4)(-2) + b$$

$$6 = -8 + b$$

$$+8 \quad +8$$

$$\boxed{14 = b}$$

$$\boxed{y = 4x + 14}$$

Find the equation for a line

(4, -2) and (6, -8)

$$\underline{\text{slope}} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - (-8)}{4 - 6} = \frac{-2 + 8}{4 - 6} = \frac{6}{-2} = \boxed{-3}$$

$$\boxed{m = -3}$$

$$y = mx + b \quad (4, -2)$$

$$-2 = (-3)(4) + b$$

$$\boxed{b = 10}$$

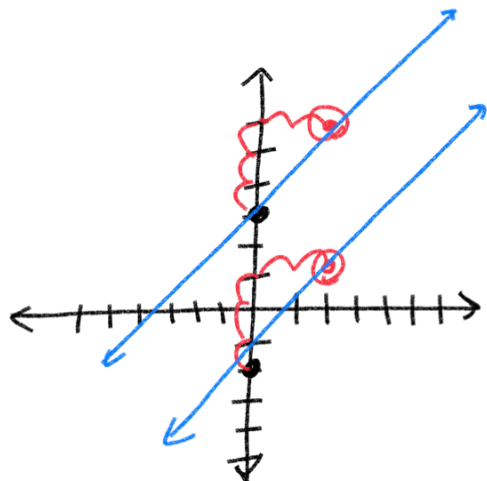
$$-2 = -12 + b$$

$$+12 \quad +12$$

$$y = mx + b$$

$$\boxed{y = -3x + 10}$$

Parallel Lines → Have the same slope



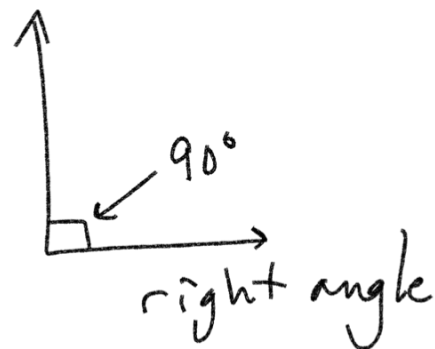
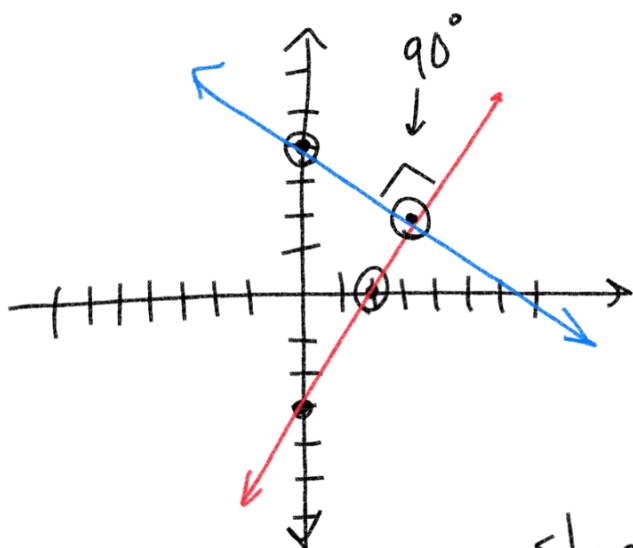
$$m = \frac{3}{2} \quad y\text{-int} = 3$$

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

y-int

$$y = \frac{3}{2}x - 2$$

Perpendicular Lines → opposite inverse slopes



$$y = \frac{3}{2}x - 3$$

slope → $\frac{3}{2}$

$$y = -\frac{2}{3}x + 4$$

$$\frac{3}{2} \rightarrow -\frac{3}{2} \rightarrow \left(\frac{-2}{3}\right)$$

Find the equation for a line parallel to

$$y = \left(\frac{4}{3}\right)x - 2 \text{ that contains the point } (6, 3).$$

$$m = \frac{4}{3} \quad \boxed{m = \frac{4}{3}}$$

$$\boxed{y = \frac{4}{3}x - 5}$$

$$y = mx + b$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 3 & = & \left(\frac{4}{3}\right)\left(\underline{6}\right) + b \end{array}$$

$$3 = \frac{24}{3} + b$$

$$3 = 8 + b \quad \boxed{b = -5}$$

-8 -8

Find the equation for a line perpendicular to

$$6x - 3y = 18 \text{ that goes through } (8, 2)$$

$$\begin{array}{ccc} 6x - 3y = 18 & & \\ -6x & & -6x \end{array}$$

$$\begin{array}{ccc} -3y = -6x + 18 & & \\ \underline{-3} & \underline{-3} & \underline{-3} \end{array}$$

$$\underline{y = 2x - 6}$$

$$\boxed{y = -\frac{1}{2}x + 6}$$

slope of given

$$\boxed{m = -\frac{1}{2}}$$

(8, 2)

opposite inverse

$$\frac{2}{1} \rightarrow -\frac{2}{1} \rightarrow \left(\frac{-1}{2}\right)$$

$$y = mx + b$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 2 & = & \left(-\frac{1}{2}\right)(8) + b \end{array}$$

$$2 = -4 + b \quad \boxed{b = 6}$$

+4 +4

