

# Parallel & Perpendicular

①  $y = \frac{1}{2}x + 6$

$(0, -2)$  y int

Parallel  $\rightarrow y = \frac{1}{2}x - 2$

②  $y = -4x - 9$

$(0, 3)$  y int

Parallel =  $y = -4x + 3$

③  $3x - y = 5$

$\begin{array}{r} -3x \quad -3x \\ \hline \end{array}$

$\begin{array}{r} -y = -3x + 5 \\ \hline -1 \quad -1 \end{array}$

$y = 3x + 5$

Parallel  
 $(0, -7)$  y int

$\rightarrow y = 3x - 7$

④  $2x + y = 5$

$\begin{array}{r} -2x \quad -2x \\ \hline \end{array}$

$y = -2x + 5$

Parallel  
 $(0, 4)$  y int

$\rightarrow y = -2x + 4$

⑤  $(3, 2)$   $y = x + 5$

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

$y - 2 = x - 3$

$\begin{array}{r} +2 \quad +2 \\ \hline \end{array}$

$y = x - 1$

⑥  $(-2, 5)$   $y = -4x + 2$

$y - 5 = -4(x + 2)$

$\begin{array}{r} y - 5 = -4x - 8 \\ +5 \quad +5 \end{array}$

$y = -4x - 3$

⑦  $(-3, 4)$   $\frac{3y = 2x - 3}{3}$

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

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

$\begin{array}{r} y - 4 = \frac{2}{3}x + 2 \\ +4 \quad +4 \end{array}$

$y = \frac{2}{3}x + 6$

⑧  $(-1, -4)$   $9x + 3y = 8$

$\begin{array}{r} -9x \quad -9x \\ \hline \end{array}$

$\frac{3y}{3} = \frac{-9x + 8}{3}$

$y = -3x + \frac{8}{3}$

$y + 4 = -3(x + 1)$

$y + 4 = -3x - 3$

$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$

$y = -3x - 7$



$$\textcircled{9} \quad y = \frac{1}{2}x + 6$$

y int (0, -2)  
Perpendicular

$$\boxed{y = -2x - 2}$$

$$\textcircled{10} \quad y = -4x - 9$$

y int = 3  
Perp.

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

$$\textcircled{11} \quad 3x - y = 5$$

$$\begin{array}{r} -3x \quad -3x \\ -y = -3x + 5 \\ \hline -1 \end{array}$$

$$y = 3x - 5$$

Perp w/ y int = -7

$$\boxed{y = -\frac{1}{3}x - 7}$$

$$\textcircled{12} \quad 2x + y = 5$$

$$\begin{array}{r} -2x \quad -2x \\ y = -2x + 5 \end{array}$$

Perp w/ y int = 4

$$\boxed{y = \frac{1}{2}x + 4}$$

$$\textcircled{13} \quad (3, 2) \quad y = x + 5$$

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

$$\begin{array}{r} y - 2 = -x + 3 \\ +2 \quad +2 \\ \hline y = -x - 5 \end{array}$$

$$\boxed{y = -x - 5}$$

Perpendicular

$$\textcircled{14} \quad (-8, 5) \quad y = -4x + 2$$

$$y - 5 = \frac{1}{4}(x + 8)$$

$$\begin{array}{r} y - 5 = \frac{1}{4}x + 2 \\ +5 \quad +5 \\ \hline y = \frac{1}{4}x + 7 \end{array}$$

$$\boxed{y = \frac{1}{4}x + 7}$$

$$\textcircled{15} \quad (-6, 4) \quad 3y = 2x - 3$$

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

$$y - 4 = -\frac{3}{2}(x + 6)$$

$$\begin{array}{r} y - 4 = -\frac{3}{2}x - 9 \\ +4 \quad +4 \\ \hline y = -\frac{3}{2}x - 5 \end{array}$$

$$\boxed{y = -\frac{3}{2}x - 5}$$

$$\textcircled{16} \quad (-1, -4) \quad 9x + 3y = 8$$

$$y = -3x + \frac{8}{3}$$

$$y + 4 = \frac{1}{3}(x + 1)$$

$$\begin{array}{r} y + 4 = \frac{1}{3}x + \frac{1}{3} \\ -4 \quad -\frac{12}{3} \\ \hline y = \frac{1}{3}x - \frac{11}{3} \end{array}$$

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



$$(17) \quad y = 3x + 2$$

$$y = 3x + 2$$

$$9x - 3y = -6$$

$$\frac{-3y = -9x - 6}{-3}$$

Same line  $\rightarrow$   
coincide

$$(18) \quad y = -2x + 3$$

$$y = \frac{1}{2}x - 2$$

$$2x - 4y = 8$$

$$\frac{-4y = -2x + 8}{-4}$$

Perp

$$(19) \quad y = 4x + 1$$

$$y = 4x - 1$$

$$8x - 2y = 2$$

$$\frac{-2y = -8x + 2}{-2}$$

Parallel

$$(20) \quad y = \frac{2}{3}x - 2$$

$$y = -x + 4$$

$$x + y = 4$$

$$y = -x + 4$$

Intersecting

## Graphing

- get into  $y = mx + b$

- plot "b" or y-int  
on y-axis.

- Move "m" spaces  
for slope.

$\frac{\text{rise}}{\text{run}}$