2-4 Prac
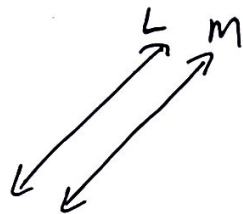
Parallel Lines = never intersect $L \parallel M$

They have same slope

make sure both equations are $y = mx + b$

Ex1 $y = 2x + 4 \longleftrightarrow$ in form no need to change.

$-2x + y = 8$

$\hookleftarrow$ need to change

$$-2x + y = 8$$
$$+2x \qquad\qquad +2x$$

$$\boxed{y = 2x + 8}$$

Slope is both 2 = Parallel

$$\boxed{\longrightarrow y = 2x + 4}$$

Ex2 $\qquad -3y + 4x = 12 \longrightarrow -3y + 4x = 12$ need to change

$8x - 6y = 30 \qquad\qquad -4x \qquad -4x$

$\downarrow$

need to change

$$\frac{-3y}{-3} = \frac{-4x}{-3} + \frac{12}{-3}$$

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

$$8x - 6y = 30$$
$$-8x \qquad\qquad -8x$$

$$\frac{-6y}{-6} = \frac{-8x}{-6} + \frac{30}{-6}$$

since both slopes are $\frac{4}{3}$

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

Parallel

Prac 2-4 cont

Perpendicular Lines = intersect exactly once, creating 90°.
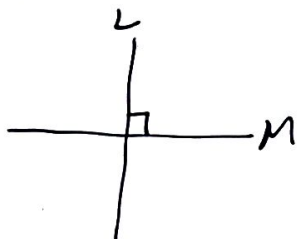
$$L \perp M$$

& The Slopes must be negative reciprocals*

Negative Reciprocals   Ex 1 $\frac{2}{3} \Rightarrow -\frac{3}{2}$

$$-\frac{1}{4} \Rightarrow \frac{4}{1} = 4$$

$$-\frac{3}{4} \Rightarrow \frac{4}{3}$$

$$2 \Rightarrow -\frac{1}{2}$$

Ex 2 $y = \frac{1}{2}x - 8$ $\longrightarrow$ no need to change

$2x + y = 12$

↘ need to change

$2x + y = 12$
$-2x \qquad -2x$

$y = -2x + 12$

Since slopes are
$\frac{1}{2} \Rightarrow -2 = $ Neg
Recip.

Perpendicular

Perpendicular

$$-3x + 6y = 12 \quad \rightarrow \text{need to change}$$
$$6x + 3y = 18$$

need to change

$$6x + 3y = 18$$
$$-6x \qquad\qquad -6x$$
$$\frac{3y}{3} = \frac{-6x}{3} + \frac{18}{3}$$
$$\boxed{x = -2x + 6}$$

$$-3x + 6y = 12$$
$$+3x \qquad\qquad +3x$$
$$\frac{6y}{6} = \frac{3x}{6} + \frac{12}{6}$$
$$\boxed{y = \frac{1}{2}x + 2}$$

Slopes $-2 \rightarrow \frac{1}{2}$ $\sim$ Neg Rec.

Perpendicular