$$Slope = \frac{\qquad}{\qquad} = \frac{\qquad}{\qquad} = \frac{\qquad}{\qquad} \quad \Rightarrow \quad m = \frac{\qquad}{\qquad}$$

Slope-intercept form of a line. We generally use the variable "**m**" to represent slope of a line.

$$m = \frac{y-b}{x-0}$$

$$m = \frac{y-b}{x}$$
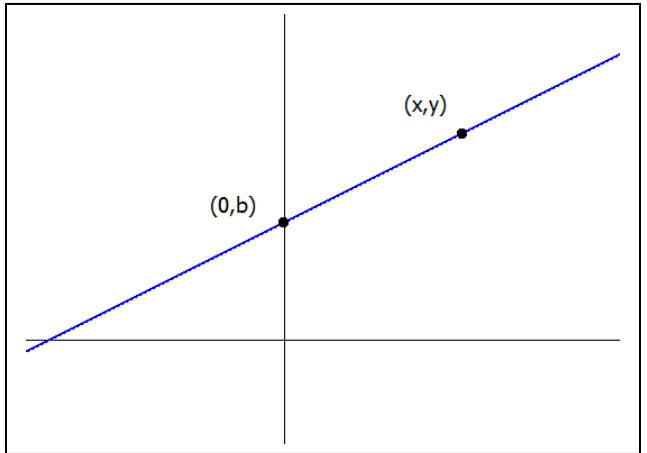
$$mx = y-b$$

$$mx+b = y$$

$$y = mx+b$$

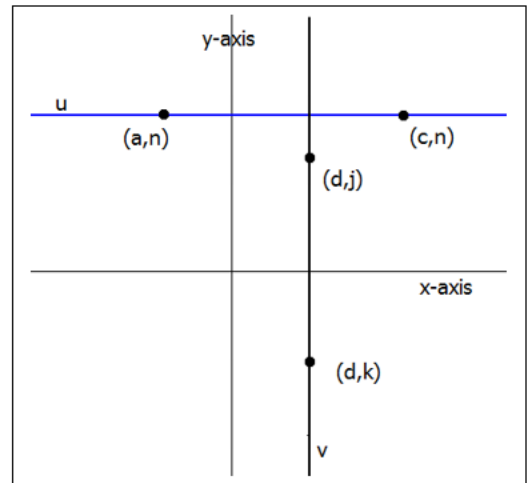$x_1, y_1 \qquad x_2, y_2$
$(0, b)$ and (x, y)

$$y = \frac{1}{2}x+5$$

↗   ↖

$slope =$ _____   y-intercept: _____

$slope\ of\ line\ u:\ \ m = \dfrac{n-n}{c-a} = \dfrac{0}{c-a} = 0$

$slope\ of\ line\ v:\ \ m = \dfrac{j-k}{d-d} = \dfrac{j-k}{0} \Rightarrow slope\ is\ undefined$

Horizontal Lines have _____.

Vertical Lines have _____.

Lines that have positive slope are slanted _____ to the _____.
Lines that have negative slope are slanted _____ to the _____.
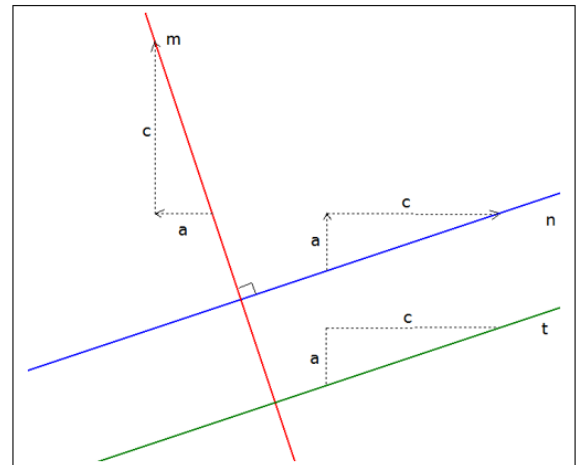
Parallel lines have the _____ slope.

Line n is parallel to Line t both slopes are $\dfrac{a}{c}$

Perpendicular Lines have slopes that are _____:

$Slope\ of\ line\ n:\ \ \dfrac{a}{c};\ \ Slope\ of\ line\ \mathrm{m}:\ \ -\dfrac{c}{a}$

Perpendicular lines slopes multiply to give negative 1 unless

vertical and horizontal lines. Thus: $\left(\dfrac{a}{c}\right)\left(-\dfrac{c}{a}\right) = -1$

Standard Form of a Linear Equation: $Ax + By = C$, where A, B and C are integers and A is positive.

Examples: $4x + 3y = 12$ $2x - y = 3$ $x + 5y = 20$

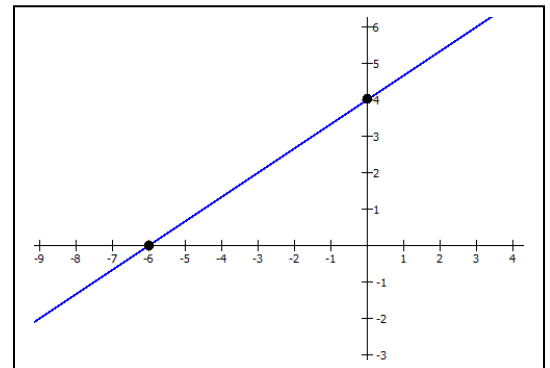**Convert equation between Slope-Intercept Form and Standard Form.

$2x - 5y = 20$ $y = \dfrac{4}{3}x + 6$

Graph Linear Equations using the Two – Intercept Method.

Method: Let x = 0 and solve for y   Let y = 0 and solve for x

               Plot the corresponding points and draw a line through them.

$2x - 3y = -12$
$let\ x = 0$ $let\ y = 0$
$\Rightarrow$ $\Rightarrow$
$\Rightarrow$ $\Rightarrow$
$\Rightarrow$ _____ is a point of the line. $\Rightarrow$ _____ is a point of the line.
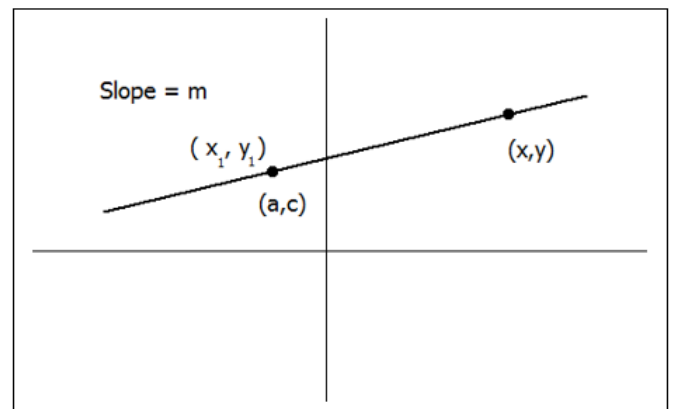
Slope Intercept Form: $2x - 3y = -12$

***<u>Point – Slope Equation for a Line</u>

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{y_2 - y_1}{x_2 - x_1}$

$m = \dfrac{y - y_1}{x - x_1}$

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

$\underline{\underline{y - y_1 = m(x - x_1)}}$

Point-slope form
General form
Standard form
Slope-intercept form