

What you will learn about:
Linear Functions

Graph the Linear Equation

$$y = mx + b$$

$m = \text{Slope}$

$$\frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x}$$

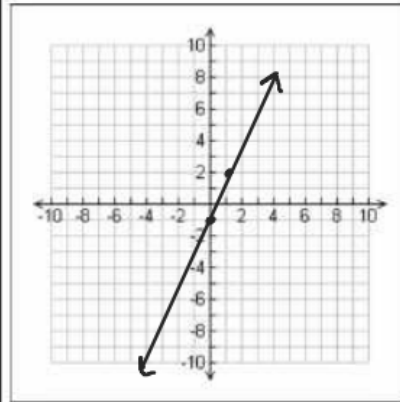
$b = \text{y-intercept}$
(crosses y-axis)

Graph the linear function

$$f(x) = 3x - 1$$

$$b = -1$$

$$m = 3 = \frac{3}{1}$$



1) Start with y-intercept
(b)

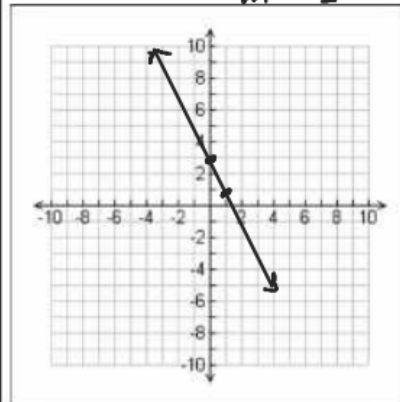
2) Starting at y-intercept
(b), use slope to find
second point

3) Draw line through the
2 points

$$g(x) = -2x + 3$$

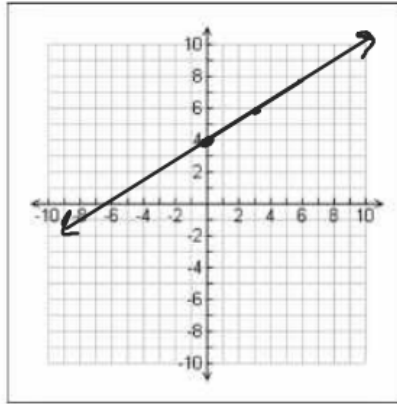
$$b = 3$$

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



$\frac{-2}{1} \rightarrow \text{Down } 2$
 $\rightarrow \text{Right } 1$

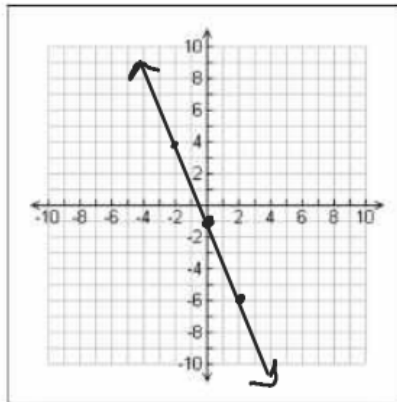
$$h(x) = \frac{2}{3}x + 4$$



$$b = 4$$

$$m = \frac{2}{3} \quad \frac{\text{up } 2}{\text{Right } 3}$$

$$p(x) = -\frac{5}{2}x - 1$$



$$b = -1$$

$$m = -\frac{5}{2} \quad \frac{\text{Down } 5}{\text{Right } 2}$$

$$\frac{5}{-2} \quad \frac{\text{Up } 5}{\text{Left } 2}$$

Solve for
Variable - get
Variable by itself
on one side of
Equation

$$\begin{array}{r} -6 = \frac{n}{2} - 10 \\ +10 \quad +10 \end{array}$$

$$\begin{array}{r} 2(4) = \left(\frac{n}{2}\right)^2 \\ 8 = n \end{array}$$

Solve each equation:

$$\begin{array}{r} -9x + 1 = -80 \\ -1 \quad -1 \end{array}$$

$$\begin{array}{r} -9x = -81 \\ -9 \quad -9 \end{array}$$

$$x = 9$$

$$\begin{array}{r} -15 = -4m + 5 \\ -5 \quad -5 \end{array}$$

$$\begin{array}{r} -20 = -4m \\ -4 \quad -4 \end{array}$$

$$5 = m$$

$$(-6) = \left(\frac{n}{2}\right) - (10)^2$$

$$\begin{array}{r} -12 = n - 20 \\ +20 \quad +20 \end{array}$$

$$8 = n$$

$$\begin{array}{r} -4 = \frac{r}{20} - 5 \\ +5 \quad +5 \end{array}$$

$$20(1) = \left(\frac{r}{20}\right) 20$$

$$20 = r$$

$$\begin{array}{r} 8n + 7 = 31 \\ -7 \quad -7 \end{array}$$

$$\begin{array}{r} 8n = 24 \\ 8 \quad 8 \end{array}$$

$$n = 3$$

$$-10 \left(\frac{n+5}{-16}\right) = (-1)(-16)$$

$$n + 5 = 16$$

$$n = 11$$

$$6(-1) = \left(\frac{5+x}{6}\right) 6$$

$$\begin{array}{r} -6 = 5 + x \\ -5 \quad -5 \end{array}$$

$$-11 = x$$

$$\begin{array}{r} \frac{m}{9} - 1 = -2 \\ +1 \quad +1 \end{array}$$

$$9\left(\frac{m}{9}\right) = (-1) 9$$

$$m = -9$$