

U11-2 Slope-intercept form of a line

Part I - Slope-Intercept form of a linear equation:

$$y = mx + b$$

Where:

- m represents _____.
- b represents _____, where the line crosses over the _____.
- x is the _____, _____, _____.
- y is the _____, _____, _____.

The graph to the right represents the linear function:

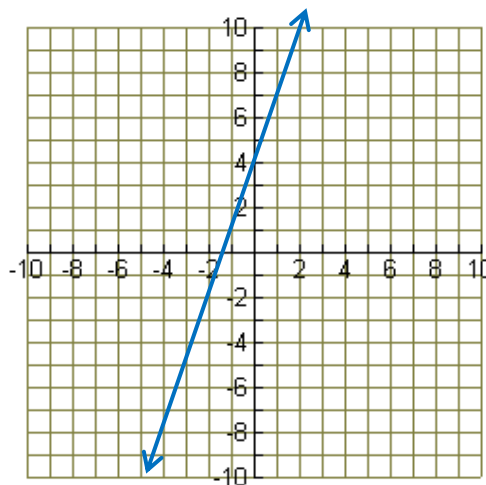
$$y = 3x + 4$$

1) What is the slope (m) of the line? (make a slope triangle)

$m =$

2) Where does the line cross the y -axis (b)?

$b =$ _____ or (____, ____)



Linear Equation	Slope (m)	y-intercept (b)
1) $y = -\frac{2}{3}x + 5$	$m =$	$b =$ _____ or (____, ____)
2) $y = x + 4$	$m =$	$b =$ _____ or (____, ____)
3) $y = 4x + \frac{1}{2}$	$m =$	$b =$ _____ or (____, ____)
4) $y = 7x - 8$	$m =$	$b =$ _____ or (____, ____)
5) $y = -3x$	$m =$	$b =$ _____ or (____, ____) *** no "b"? Make it a _____ ***
6) $y = 7$	$m =$ ***no "m"? Make it a _____ ***	$b =$ _____ or (____, ____)

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Part II – Writing Linear Equations

When asked to write an equation in slope intercept form ($y = mx + b$), you need to know two things –

1) _____

&

2) _____

Ex 1: Write an equation in slope-intercept form of a line that has a slope of 2 and a y-intercept of 6.

Step 1: What is the slope? $m =$ _____

Step 2: What is the y-intercept? $b =$ _____

Step 3: Plug m and b in to the slope–intercept form $y = mx + b$

$$\begin{array}{c} y = mx + b \\ \downarrow \quad \searrow \\ y = ___ x + ___ \end{array}$$

Ex 2: Write an equation in slope-intercept form of a line that has y-intercept of -3 and a slope of -4.

Step 1: What is the slope? $m =$ _____

Step 2: What is the y-intercept? $b =$ _____

Step 3: Plug m and b in to the slope–intercept form $y = mx + b$

$$\begin{array}{c} y = mx + b \\ \downarrow \quad \searrow \\ y = ___ x + ___ \end{array}$$

You Try:

	Slope m	y-intercept b	Equation $y = mx + b$ (Put your final equation in simplest form)
1)	$m = -\frac{1}{5}$	$b = 9$	
2)	$m = 3$	$b = -6$	
3)	$m = \frac{3}{4}$	$b = 0$	
4)	$m = 1$	$(0, 2)$	
5)	$m = 0$	$b = -13$	