

Notes: Investigation into Slope Intercept Form

Step 1: Find the slope and y - intercept of this table.

➤ Slope is the $\frac{\Delta y}{\Delta x}$ and the y - intercept is the ordered pair where the x - value is zero

	x	y	$\frac{\Delta y}{\Delta x}$
+4	-4	0	$\frac{1}{2}$
+2	0	2	
	2	3	
+4	6	5	

$$\text{Slope} = \frac{1}{2}$$

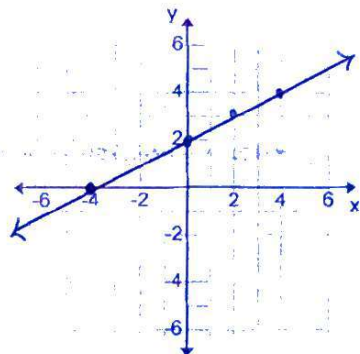
y - intercept is : (0, 2)

Step 2: Substitute your answers (slope and y - intercept) below:

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

Step 3: Using your calculator, press the $y =$ button and type the equation from Step 2 into Y_1 . To type the "x" in the equation, use the $X, T \theta, n$ button.

Step 4: Now that you have your equation in Y_1 , press 2^{nd} GRAPH to look at the table of values based on your equation. Does it match the table above? Plot 4 points from the table on the graph below and connect the points.



Step 5: Press GRAPH to see what the line looks like on the calculator. Does it match your graph? ✓

Repeat the process for the tables below.

	x	y	
$\times 3$	-3	3	-2
$\times 3$	0	1	-2
$\times 3$	3	-1	-2
	6	-3	

$m = -\frac{2}{3}$

Equation:

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

	x	y	
$\times 2$	-2	-13	+10
$\times 2$	0	-3	+10
$\times 2$	2	7	+10
$\times 2$	4	17	+10

$m = \frac{10}{2} = 5$

Equation:

$$y = 5x - 3$$

	x	y	
$\times 4$	-8	-2	+1
$\times 4$	-4	-1	+1
$\times 4$	0	0	+1
$\times 4$	4	1	+1

$m = \frac{1}{4}$

Equation:

$$y = \frac{1}{4}x$$

	x	y	
$\times 10$	-15	0	+4
$\times 5$	-5	-4	+2
$\times 10$	0	-6	+4
$\times 10$	10	-10	+4

$m = \frac{2}{5}$

Equation:

$$y = \frac{2}{5}x - 6$$

Slope - Intercept Form of a Linear Equation ($y = mx + b$)

The slope is represented by the letter m and the y - intercept is represented by the letter b.

- 1) Given the equation $y = 4x - 6$, what is the y -intercept and the slope? $m = \frac{4}{1}$, $b = -6$
Graph the line in the calculator, look at its table of values and fill in the table below:

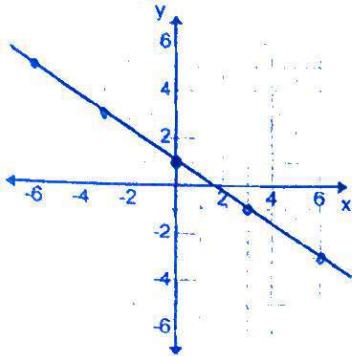
x	-8	3	15
y	-38	6	54

- 2) Given that the slope of the line is $-\frac{3}{4}$, and the y -intercept is $(0, -4)$, write the equation of the line.

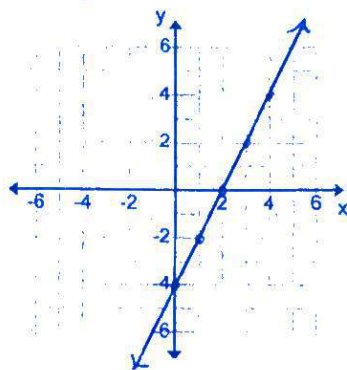
$$y = -\frac{3}{4}x - 4$$

Graph the following lines, WITHOUT A CALCULATOR, then use it to check your work.

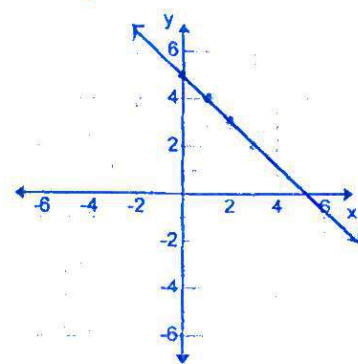
$$y = -\frac{2}{3}x + 1$$



$$y = 2x - 4$$



$$y = -x + 5$$



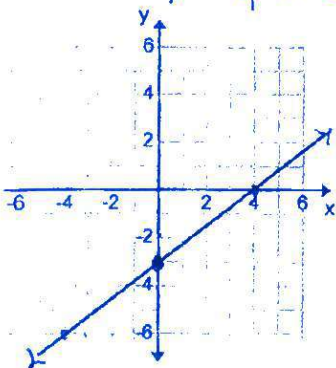
Can you type an equation in Standard Form ($Ax + By = C$) into the calculator and graph the line? No

If not, what do you have to do in order to use the calculator to graph this function?

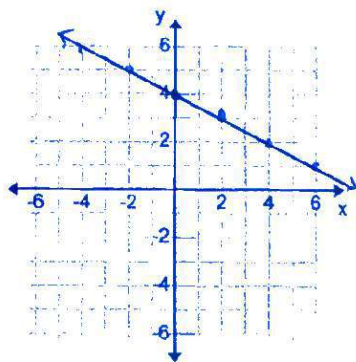
Solve for y !!

Write each line in slope - intercept form and then graph it.

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



$$\begin{array}{r} x + 2y = 8 \\ -x \quad -x \\ \hline 2y = -x + 8 \\ \frac{2y}{2} = \frac{-x + 8}{2} \\ y = -\frac{1}{2}x + 4 \end{array}$$



$$\begin{array}{r} 10y = 30x - 20 \\ \frac{10y}{10} = \frac{30x - 20}{10} \\ y = 3x - 2 \end{array}$$

