

How do you graph linear equations using the slope-intercept form of the equation?

Slope-intercept form of a line: $y=mx+b$

m : slope of the line (coefficient of x) tells you how to *move* from point to point on a line
 b : *y-intercept* of the line, ordered pair $(0, b)$. This is where you begin on your graph

Steps:

1. Rewrite equation in Slope-intercept form. (solve for y)
2. Identify the y -intercept.
3. Graph the y -intercept. Ordered pair $(0, b)$ on the y -axis
This is where you begin!
4. Identify the slope. m =slope (m is how you move to get points on the line)
5. Use slope to plot more points ($\frac{\text{rise}}{\text{run}} = \frac{\text{up or down}}{\text{right or left}}$).
6. Draw line through the Points to form the line.

Example:

$$(1) \quad -2x + 3y = -6$$

$$\begin{array}{r} +2x \quad +2x \\ \hline 3y = \frac{2x}{3} - \frac{6}{3} \end{array}$$

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

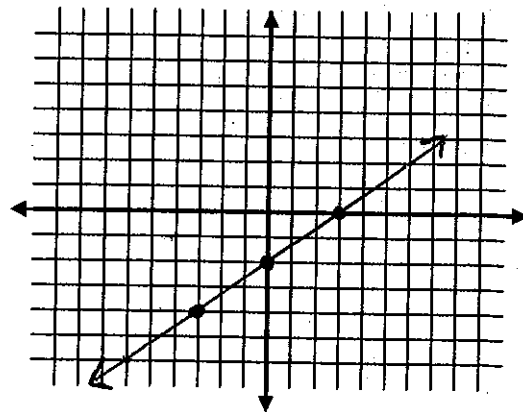
$$m = \frac{2}{3} \quad b = -2, \text{ y-intercept is } (0, -2)$$

- (2) b is -2 , so the y -intercept is ordered pair $(0, -2)$
Graph this point on the y -axis

(4) slope is $m = \frac{2}{3}$

($\frac{\text{up 2 units}}{\text{right 3 units}}$ or $\frac{-2 \text{ down 2 units}}{-3 \text{ left 3 units}}$)

Use the slope to move from the y -intercept to get 2 more points on the line



You try...

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

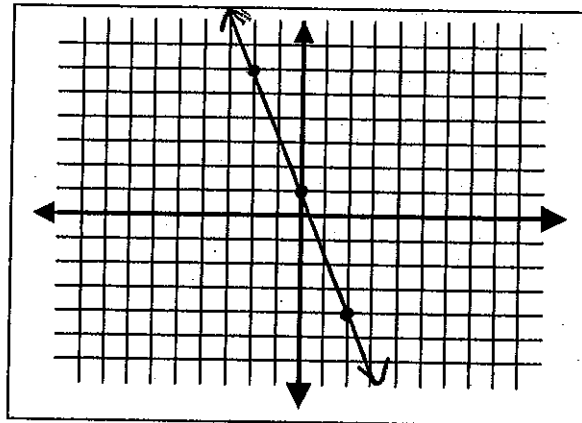
It is already in slope-intercept form.

$b = 1$, y -intercept is $(0, 1)$
Graph this point on the y -axis

Slope is $m = -\frac{5}{2}$

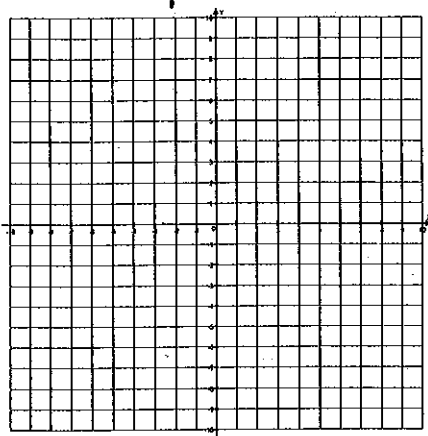
$m =$

$\frac{-5 \text{ down 5}}{2 \text{ right 2}}$ or $\frac{5 \text{ up 5}}{-2 \text{ left 2}}$

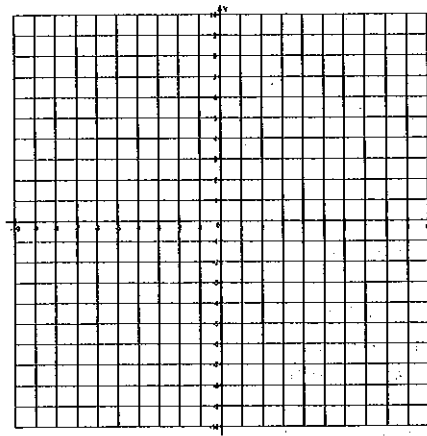


Practice. Graph each line.

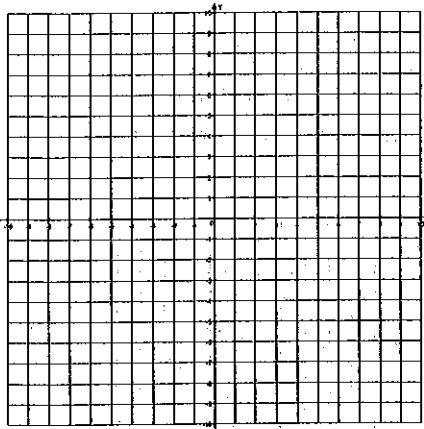
1. $y = 3x - 4$



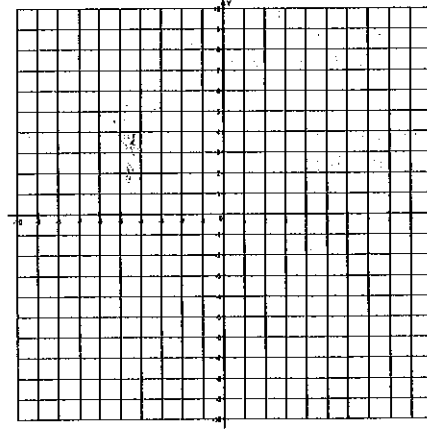
2. $y = -\frac{1}{2}x + 1$



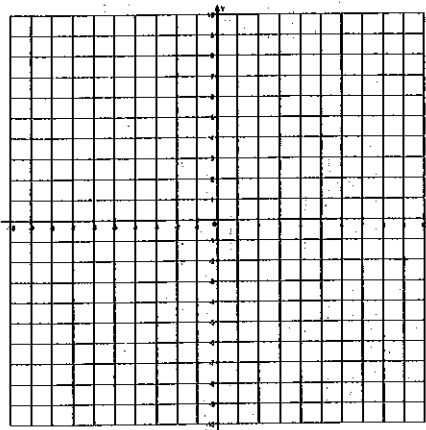
3. $3x + y = -4$



4. $y = x$



5. $x = 5$



6. $y = -3$

