

Graphing Linear Equations & Inequalities

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4B

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Essential Question:

How do you graph linear equations and inequalities?

Questions:

What are the important terms?

Notes:

Slope: Rate of Change
Measure of steepness

Formulas: $\frac{\text{rise}}{\text{run}}$
 $\frac{\Delta y}{\Delta x}$

y-intercept: the point where the line intersects the y-axis
★ $x = 0$

★ Starting point

SLOPE INTERCEPT FORM

ex) Graph

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

slope \nearrow y-int \nearrow

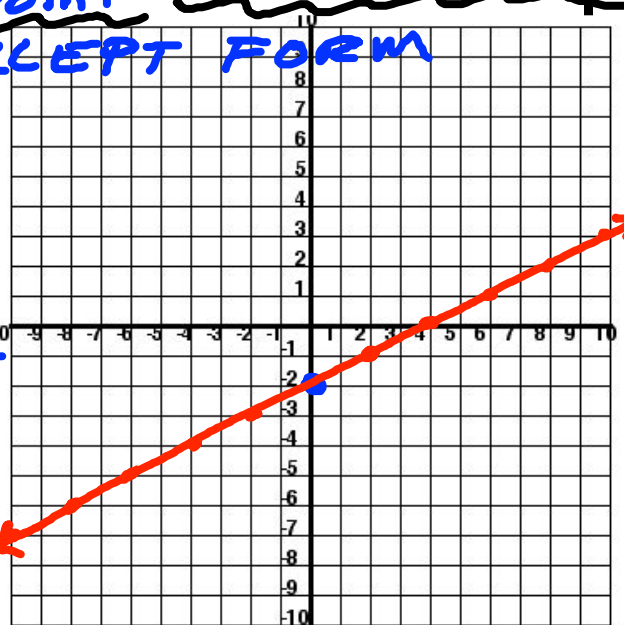
1) Plot the y-int.

$$-2 \rightarrow (0, -2)$$

2) Use the slope to plot other points

$$\frac{1}{2} \Rightarrow \begin{array}{l} \text{Rise of 1} \\ \text{Run of 2} \end{array}$$

"Go to the right 2 every time you go up 1"



Summary:

★ A whole # slope is just that number over 1

$$6 = \frac{6}{1} \text{ up 6, right 1}$$

Questions:

Notes:

STANDARD FORM

$$Ax + By = C$$

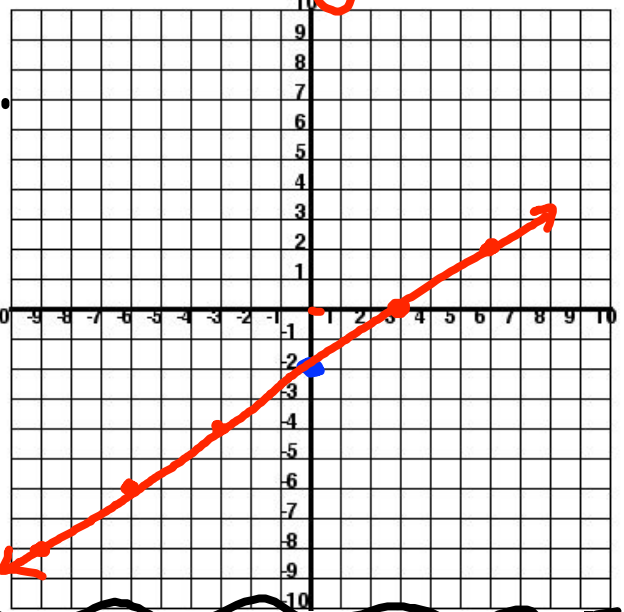
ex) $2x - 3y = 6$

1) Convert to $y = mx + b$ form.

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

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

Slope \nearrow \nearrow y-int.

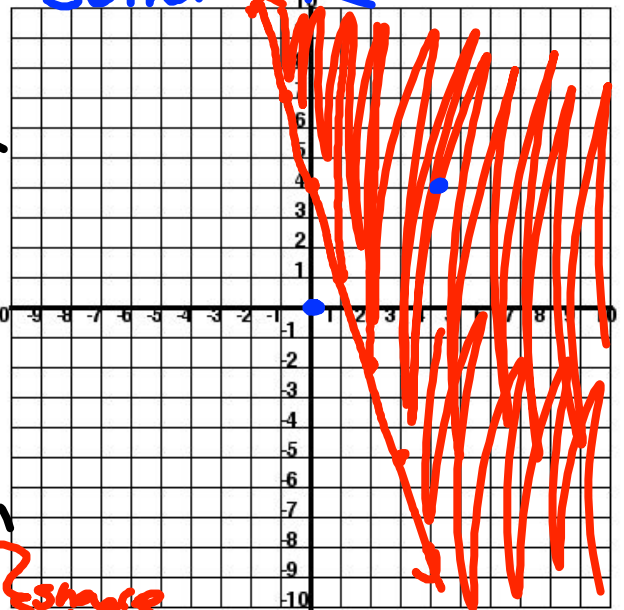


Graphing Linear Inequalities

$\{ \}$ dashed line $\leq \geq$ solid line

ex) $3x + y \geq 4$

$$\begin{aligned} -3x \quad -3x & \\ \hline y &\geq -3x + 4 \end{aligned}$$



1) Graph the line

2) Dotted / Solid?

3) Shade up / down

\geq } shade up \leq } shade down

Summary: