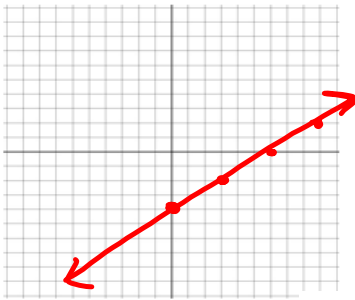
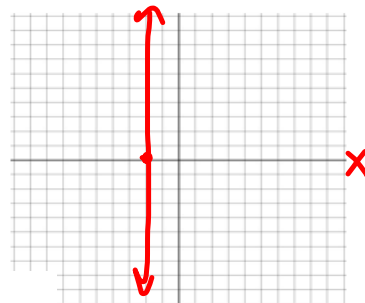


Warm Up

1. $y = \frac{2}{3}x - 4$



3. $x = -2$



2. $-3x - 4y = 20$

Opt I

$$\frac{-3x = 20}{-3} = \frac{-20}{-3}$$

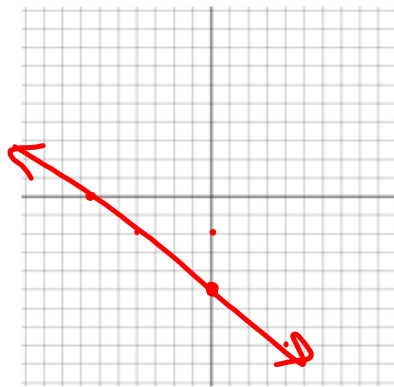
$$x = -6.6$$

$$\frac{-4y = 20}{-4} = \frac{-5}{-4}$$

$$y = -5$$

Option II

$$\begin{aligned} -3x - 4y &= 20 \\ +3x & \quad +3x \\ \hline -4y &= +3x + 20 \\ \frac{-4y}{-4} &= \frac{+3x}{-4} + \frac{20}{-4} \\ y &= \frac{-3}{4}x - 5 \end{aligned}$$



Graphing Linear Inequalities Guided Notes

Algebra I ELL

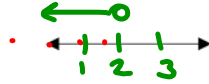
Recall

Solutions to a LINE

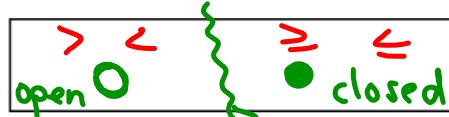


Any point (x, y) on the line

Solutions to an INEQUALITY



$x < 2$
Any value under the arrow



Example 1 Graph

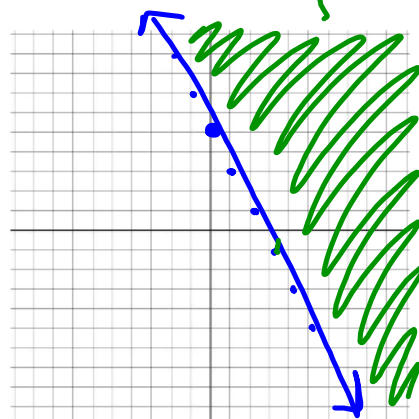
$$y \geq -2x + 5$$

pretend $y = -2x + 5$

$$m = \frac{-2}{1} \quad b = 5$$

inequality \geq { solid above

New dotted line \swarrow solid line \searrow



Shading



only works if in the form $y = mx + b$

Example 2 Is the following a solution?

a) $(-2, 4)$ $y < 4x - 4$

$$4 < 4(-2) - 4$$

$$4 < -8 - 4$$

$$4 < -12$$

FALSE

b) $(5, -7)$

$$-7 < 4(5) - 4$$

$$-7 < 20 - 4$$

$$-7 < 16$$

TRUE



True ↳ Is A Solution
False ↳ Is NOT a Solution

• Rewrite in $y = mx + b$



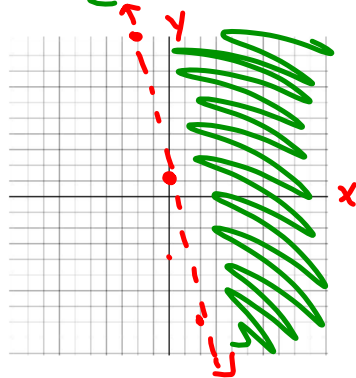
flip the inequality when \div by negative #

Example 3 Graph

a) $18x + 4y > 4$

$-18x$ $-18x$
 divide $\frac{4y}{4} > \frac{-18x}{4} + \frac{4}{4}$
 $y > -\frac{9}{2}x + 1$

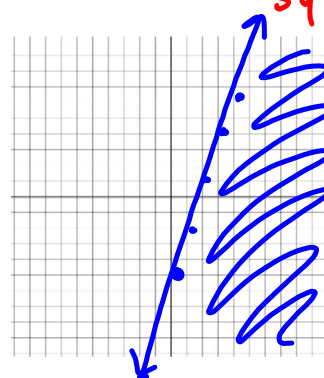
Symbol
 $>$
 $\leftarrow \text{---} \rightarrow$
 above



b) $3x - y \geq 5$

$-3x$ $-3x$
 $\frac{-y}{-1} \geq \frac{-3x}{-1} + \frac{5}{-1}$
 $y \leq 3x - 5$

symbol \leq
 solid below



You TRY!

<p>1 Graph $y \leq \frac{7}{3}x - 5$</p>	<p>2 Solution?</p> <p>$y \geq \frac{1}{2}x + 4$</p> <p>a) $(5, -3)$</p> <p>b) $(-6, 8)$</p>	<p>3 Graph $x - 3y < -9$</p>
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