

Inequalities – Quick Reference

Inequality Symbols

- $<$ Less Than
- \leq Less Than OR Equal To
- $>$ Greater Than
- \geq Greater Than or Equal To

Graphing Inequalities in One Variable

Graphing Symbols

- $\circ \rightarrow$ **Greater Than** (The open circle indicates that this is **NOT Equal to** the numeral graphed.)
- $\bullet \rightarrow$ **Greater Than or Equal To** (The closed circle indicates that this is **Equal to** the numeral graphed.)
- $\leftarrow \circ$ **Less Than** (The open circle indicates that this is **NOT Equal to** the numeral graphed.)
- $\leftarrow \bullet$ **Less Than or Equal To** (The closed circle indicates that this is **Equal to** the numeral graphed.)

Special Rule - Just for Inequalities

Whenever you **multiply or divide** by a **negative** number, you **MUST reverse** the sign.

Example
 $-3x < 9$

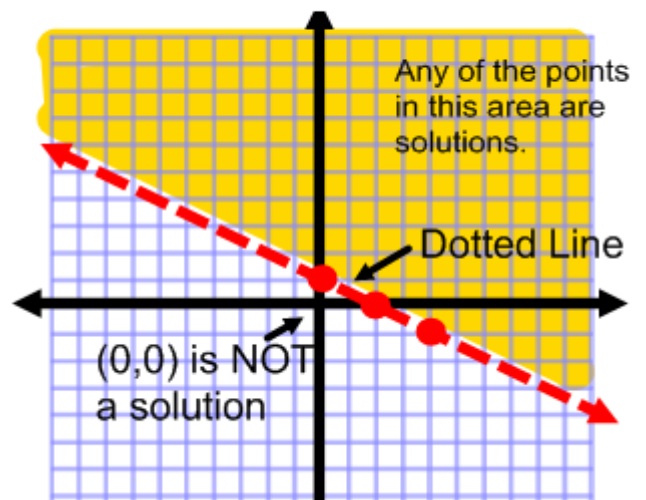
Divide by a negative 3 \rightarrow $\frac{-3x}{-3} < \frac{9}{-3}$ Reverse the sign

$x > -3$

Graphing Inequalities in Two Variables

Graph for: $y > -1/2x + 1$

- Graph $y = -1/2x + 1$, but dot the line since the symbol is $>$. The points on the line are **not** solutions.
- Pick a point such as $(0,0)$ and substitute it into the inequality. $(0,0)$ is **not** a solution, therefore, shade the side of the line that does not contain $(0,0)$.



Systems of Inequalities

Graph each inequality as shown above. **ONLY** the area that is shaded by **BOTH** inequalities is the solution set (orange section)

