

Unit 1 Inequalities

Solving Inequalities:

Rule: If you multiply or divide by a negative number then flip the inequality sign.

Example: $-4x < 10$

$$\frac{-4x}{-4} < \frac{10}{-4} \quad \text{Divide both sides by } -4$$

$$x > -\frac{5}{2} \quad \text{Flip the inequality sign and reduce the fraction}$$

Graphing inequalities:

Rule: Graphing inequalities:

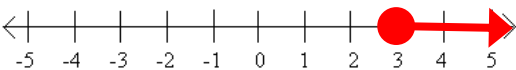
$>$ or $<$ will graph using an open circle

Whereas

\geq or \leq will graph using a closed circle

Example: $x < 3$  A number line with arrows at both ends and tick marks from -5 to 5. An open circle is drawn at the number 3, and a red arrow points to the left from this circle.

and

$x \geq 3$  A number line with arrows at both ends and tick marks from -5 to 5. A closed red circle is drawn at the number 3, and a red arrow points to the right from this circle.

Interval notation:

Rule: Writing inequalities in Interval notation:

$>$ or $<$ will use parenthesis, (or)

Whereas

\geq or \leq will use brackets, [or]

$-\infty$ and ∞ will always use parenthesis, (or)

Example: $x < 3$ interval notation: $(-\infty, 3)$

And

$x \geq -2$ interval notation: $[-2, \infty)$