

## Solving Two-Sided Linear Inequalities

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1. Multiply both sides by the Least Common Denominator (LCD) to reduce fractions.
  2. Use the Distributive Property to remove parentheses.
  3. Combine Like Terms.
  4. Use Addition or Subtraction to move all the variable terms to the Left Side.
  5. Use Addition or Subtraction to move all the non-variable terms (number terms) to the Right Side.
  6. Divide both sides by the Coefficient.
- Whenever you multiply or divide both sides by a negative number, flip the direction of the inequality.

Possible results when solving a Two-Sided Linear Inequality

- a. Variable  $<$ ,  $>$ ,  $\leq$ ,  $\geq$ ,  $\neq$  number

$$\begin{aligned}x &> -2 \\ y &\leq 0\end{aligned}$$

- Solution is the result of the solving process

- b. All the variable terms are eliminated leaving a False Statement.

$$\left. \begin{aligned}0 &\geq 4 \\ 0 &< -2\end{aligned} \right\} \text{ False Statements}$$

- No Solution

- c. All the variable terms are eliminated leaving a True Statement.

$$\left. \begin{aligned}0 &> -2 \\ 3 &< 5\end{aligned} \right\} \text{ True Statements}$$

- All Real Numbers

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