

Interval Notation and Inequalities

Learning Objectives

- Use interval notation
 - Use properties of inequalities
 - Solve simple inequalities in one variable algebraically
 - Solve compound inequalities in one variable algebraically
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Use interval notation

1. Write the following inequalities in interval notation.
 - a. $x > 4$
 - b. $x \leq -3$
 - c. $2 < x \leq 5$

Use properties of inequalities

2. Use properties of inequalities to rewrite the following expressions with the variable positive and on the left.
 - a. $-x > 1$
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b. $6 \leq x$

Solve simple inequalities in one variable algebraically

3. Solve the inequality $2(x - 4) \geq 10$. Write your solution in interval notation.

Solve compound inequalities in one variable algebraically

4. Solve the compound inequality $-1 < 2x - 7 < 5$ and write the solution in interval notation.

Remember to flip the direction of the inequality when you:

- Multiply or divide by a negative number: $-2x > 3$ is the same as $x > -\frac{3}{2}$
- Reorder the variable and constant in a simplified inequality: $6 > x$ is the same as $x < 6$

ANSWER KEY

1. a. $(4, \infty)$, b. $(-\infty, 3]$, c. $(2, 5]$.
2. a. $x < -1$, b. $x \geq 6$
3. $[9, \infty)$
4. $(3, 6)$