

Solving Inequalities Worksheet

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Part 1: Building a Foundation
Which of the following symbols represents "less than or equal to"?
Hint: Think about the symbols used in inequalities.
O >
O <
○ ≥
○ ≤
Which of the following are types of inequalities? (Select all that apply)
Hint: Consider the different forms inequalities can take.
☐ Linear Inequalities
Quadratic Inequalities
Exponential Inequalities
Rational Inequalities
Explain what it means to solve an inequality. How is it different from solving an equation?
Hint: Consider the nature of the solutions in both cases.

List the four main inequality symbols and provide a brief description of each.



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Hint: Think about the symbols you use in inequalities.
1. Symbol: <
2. Symbol: >
3. Symbol: ≤
4. Symbol: ≥
Part 2: Comprehension and Interpretation
When solving the inequality $3x - 5 > 7$, what is the first step?
Hint: Think about how to isolate the variable.
○ Add 5 to both sides
Subtract 5 from both sides Divide both sides by 3
Divide both sides by 3Multiply both sides by 3
Which of the following statements are true about inequalities? (Select all that apply)
Hint: Consider the properties of inequalities when performing operations.
☐ Multiplying both sides by a negative number reverses the inequality sign.
Adding the same number to both sides of an inequality changes the inequality sign.
☐ Inequalities can be represented on a number line. ☐ Dividing both sides by a positive number keeps the inequality sign the same
Inequalities can be represented on a number line.Dividing both sides by a positive number keeps the inequality sign the same.

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Hint: Think about how to represent the endpoint and the direction of the line.

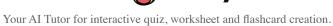


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Part 3: Application and Analysis
Solve the inequality 2x + 3 ≤ 11 and choose the correct solution.
Hint: Isolate x by performing inverse operations.
$\bigcirc x \le 4$
$\bigcirc x \ge 4$
$\bigcirc x \le 5$
\[x ≥ 5 \]
Which of the following are solutions to the inequality x^2 - $4x < 0$? (Select all that apply)
Hint: Consider the roots of the equation and the intervals they create.
A store offers a discount such that the total cost C of an item after discount is less than \$50. If the original price is \$60 and the discount is represented by d, write an inequality to represent this situation and solve for d.
Hint: Think about how to express the total cost in terms of the discount.

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Consider the compound inequality $1 < 2x + 3 \le 7$. What is the solution for x?
Hint: Break the compound inequality into two parts to solve.
1 < x ≤ 2
○ 1 < x < 2
○ -1 < x < 2
Explain how you would solve the inequality $(x+1)/(x-2) > 3$. What steps would you take to ensure all solutions are valid?
Hint: Consider how to eliminate the fraction and check for extraneous solutions.
Part 4: Evaluation and Creation
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10000 < P < 50000	
reate a real-world problem involving a quadratic inequality. Describe the problem and solve the nequality, explaining each step.)
lint: Think about a scenario that can be modeled with a quadratic expression.	
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