Multi Step Inequalities Worksheet Answer Key PDF

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Part 1: Building a Foundation

What does the inequality symbol "≤" represent?

undefined. A) Less than

undefined. B) Greater than

undefined. C) Less than or equal to ✓

undefined. D) Greater than or equal to

The symbol "≤" represents that a value is less than or equal to another value.

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The symbol "≤" represents that a value is less than or equal to another value.

Which of the following are inequality symbols? (Select all that apply)

undefined. A) =

undefined. B) < ✓

undefined. C) > ✓

undefined. D) ≤ ✓

The inequality symbols include <, >, and ≤.

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undefined. B) < ✓

undefined. C) > ✓

undefined. D) ≤ ✓

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Inequality symbols include <, >, ≤, and ≥.

Explain the difference between strict inequalities and inclusive inequalities.

Strict inequalities do not include the boundary value (e.g., <, >), while inclusive inequalities do include the boundary value (e.g., ≤, ≥).

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Strict inequalities do not include the boundary value, while inclusive inequalities do.

When you multiply both sides of an inequality by a negative number, what must you do to the inequality sign?

undefined. A) Leave it unchanged

undefined. B) Flip it ✓

undefined. C) Remove it

undefined. D) Double it

You must flip the inequality sign when multiplying or dividing by a negative number.

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Part 2: comprehension and Application

Which property allows you to simplify the expression 3(x + 4) in an inequality?

undefined. A) Commutative Property

undefined. B) Associative Property

undefined. C) Distributative Property ✓
undefined. D) Identity Property

The Distributative Property allows you to simplify the expression.

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The Distributative Property allows you to simplify the expression.

Which of the following are valid steps when solving the inequality 2x + 3 > 7? (Select all that apply)

undefined. A) Subtract 3 from both sides ✓
undefined. B) Add 3 to both sides
undefined. C) Divide both sides by 2 ✓
undefined. D) Multiply both sides by 2

Valid steps include subtract 3 from both sides and divide both sides by 2.

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Describe how you would check if a solution to an inequality is correct.

To check a solution, substitute the value back into the original inequality to see if it holds true.

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You can check a solution by substituting it back into the original inequality to see if it holds true.

Solve the inequality: 5x - 7 < 18. What is the value of x?

undefined. A) x < 5 ✓
undefined. B) x < 3
undefined. C) x > 5
undefined. D) x > 3

The solution is x < 5.

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The solution is x < 5.

You have the inequality 4(x - 2) ≥ 12. Which of the following are correct steps to solve it? (Select all that apply)

undefined. A) Distribute the 4 ✓
undefined. B) Add 2 to both sides
undefined. C) Divide both sides by 4 ✓
undefined. D) Subtract 8 from both sides

Correct steps include distributing the 4 and dividing both sides by 4.

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Translate the following scenario into an inequality: "A student needs at least 75% to pass the exam."

The inequality can be expressed as x ≥ 75, where x is the percentage score.

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Part 3: Analysis, Evaluation, and Creation

If you have the inequality -3x + 5 ≤ 2, what is the first step to isolate x?

undefined. A) Add 5 to both sides
undefined. B) Subtract 5 from both sides ✓
undefined. C) Multiply both sides by -3
undefined. D) Divide both sides by -3

The first step is to subtract 5 from both sides.

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The first step is to subtract 5 from both sides.

Consider the inequality 2x + 4 < 3x - 1. Which of the following steps are part of solving this inequality? (Select all that apply)

undefined. A) Subtract 2x from both sides ✓

undefined. B) Add 1 to both sides

undefined. C) Subtract 4 from both sides ✓

undefined. D) Divide both sides by x

Valid steps include subtract 2x from both sides and subtract 4 from both sides.

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Valid steps include subtract 2x from both sides and subtract 4 from both sides.

Analyze the inequality 6 - 2x > 10 and explain the process to find the solution set.

To solve, isolate x by subtract 6 from both sides and then divide by -2, flipping the inequality sign.

Analyze the inequality 6 - 2x > 10 and explain the process to find the solution set.

To solve, isolate x by first subtract 6 from both sides, then divide by -2, flipping the inequality sign.

Analyze the inequality 6 - 2x > 10 and explain the process to find the solution set.

To solve, isolate x by subtract 6 from both sides and then divide by -2, flipping the inequality sign.

Which of the following is the correct solution set for the inequality 3(x - 1) ≤ 2x + 4?

undefined. A) $x \leq 7$

undefined. B) $x \geq 7$

undefined. C) $x \leq 5$ ✓

undefined. D) $x \geq 5$

The correct solution set is $x \leq 5$.

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undefined. D) $x \geq 5$

The correct solution set is $x \leq 7$.

Given the inequality x/2 - 3 > 1, which of the following values satisfy the inequality? (Select all that apply)

undefined. A) x = 10 ✓

undefined. B) x = 8 ✓

undefined. C) x = 6

undefined. D) x = 4

The values that satisfy the inequality are x = 10 and x = 8.

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The values that satisfy the inequality are x = 10 and x = 8.

Create a real-world scenario that can be represented by the inequality 5x + 2 ≤ 20, and explain how you would solve it.

An example could be budgeting where x represents the number of items purchased, and the total cost must not exceed $20.

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An example could be budgeting where x represents the number of items purchased, and you need to stay within a budget.