Multi Step Inequalities Worksheet

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Part 1: Building a Foundation

What does the inequality symbol "≤" represent?

Hint: Think about the meaning of the symbols.

- ◯ A) Less than
- ◯ B) Greater than
- ◯ C) Less than or equal to
- ◯ D) Greater than or equal to

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

Hint: Consider the symbols used in inequalities.

- ☐ A) =

- [ ] B) <
- [ ] C) >
- [ ] D) ≤

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

Hint: Consider the symbols used to compare values.

- [ ] A) =
- [ ] B) <
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Explain the difference between strict inequalities and inclusive inequalities.

Hint: Consider how each type of inequality treats the boundary values.

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

Hint: Consider the effect of multiplying by a negative.

- ◯ A) Leave it unchanged
- ◯ B) Flip it
- ◯ C) Remove it
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Part 2: comprehension and Application

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

Hint: Think about the properties of operations.

- ◯ A) Commutative Property
- ◯ B) Associative Property
- ◯ C) Distributative Property
- ◯ D) Identity Property

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

Hint: Think about how you can distribute terms.

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

Hint: Consider the operations that can isolate x.

- ☐ A) Subtract 3 from both sides
- ☐ B) Add 3 to both sides
- ☐ C) Divide both sides by 2

- [ ] D) Multiply both sides by 2

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

Hint: Consider the operations needed to isolate x.

- [ ] A) Subtract 3 from both sides
- [ ] B) Add 3 to both sides
- [ ] C) Divide both sides by 2
- [ ] D) Multiply both sides by 2

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

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

Hint: Isolate x to find its value.

- ◯ A) x < 5
- ◯ B) x < 3
- ◯ C) x > 5
- ◯ D) x > 3

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

Hint: Consider the operations needed to isolate x.

- [ ] A) Distribute the 4
- [ ] B) Add 2 to both sides
- [ ] C) Divide both sides by 4
- [ ] D) Subtract 8 from both sides

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

Hint: Consider how to manipulate the inequality to isolate x.

- [ ] A) Distribute the 4
- [ ] B) Add 2 to both sides
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Translate the following scenario into an inequality: "A student needs at least 75% to pass the exam."

Hint: Think about how to express the requirement mathematically.

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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?

Hint: Consider the operations needed to isolate the variable.

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

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

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

Hint: Think about the operations needed to isolate x.

- ☐ A) Subtract 2x from both sides
- ☐ B) Add 1 to both sides
- ☐ C) Subtract 4 from both sides
- ☐ D) Divide both sides by x

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

Hint: Think about how to isolate x in this inequality.

- ☐ A) Subtract 2x from both sides
- ☐ B) Add 1 to both sides
- ☐ C) Subtract 4 from both sides
- ☐ D) Divide both sides by x

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

Hint: Consider how to isolate x and what the solution set represents.

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Hint: Consider how to isolate x and what the solution set looks like.

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

Hint: Consider the steps you would take to solve the inequality.

- ◯ A) $x \leq 7$
- ◯ B) $x \geq 7$
- ◯ C) $x \leq 5$
- ◯ D) $x \geq 5$

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

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

Hint: Isolate x to find the correct solution set.

- ◯ A) $x \leq 7$
- ◯ B) $x \geq 7$
- ◯ C) $x \leq 5$
- ◯ D) $x \geq 5$

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

Hint: Consider the values that make the inequality true.

- ☐ A) $x = 10$
- ☐ B) $x = 8$
- ☐ C) $x = 6$
- ☐ D) $x = 4$

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

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☐ D) x = 4

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

Hint: Think about a situation where you have a limit or maximum.

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Hint: Think about a situation where you have constraints.