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Linear Inequalities Worksheet

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Part 1: Building a Foundation

Which of the following symbols is not used in linear inequalities?

Hint: Think about the symbols used in equations versus inequalities.

○ <
○ =
○ ≤
○ >

Which of the following symbols is not used in linear inequalities?

Hint: Consider the symbols commonly used in inequalities.

○ <
○ =
○ ≤
○ >

Which of the following symbols is not used in linear inequalities?

Hint: Consider the symbols commonly used in inequalities.

○ <
○ =
○ ≤
○ >

Which of the following are inequality symbols used in linear inequalities?

Hint: Consider the symbols that indicate a relationship between two values.

☐ <

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☐ >
☐ ≠
☐ =

Which of the following are inequality symbols used in linear inequalities?

Hint: Think about the symbols that represent relationships.

☐ <
☐ >
☐ ≠
☐ =

Which of the following are inequality symbols used in linear inequalities?

Hint: Think about the symbols that represent relationships between values.

☐ <
☐ >
☐ ≠
☐ =

Define a linear inequality and explain how it differs from a linear equation.

Hint: Consider the definition of both terms and their graphical representations.

Define a linear inequality and explain how it differs from a linear equation.

Hint: Consider the definitions and characteristics of both.

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Define a linear inequality and explain how it differs from a linear equation.

Hint: Consider the definitions and characteristics of both concepts.

What happens to the inequality sign when both sides of an inequality are multiplied by a negative number?

Hint: Consider the rules of inequalities when multiplying or dividing by negative values.

- ○ It remains the same.
- ○ It flips direction.
- ○ It becomes an equal sign.
- ○ It disappears.

What happens to the inequality sign when both sides of an inequality are multiplied by a negative number?

Hint: Consider the rules of inequalities when multiplying.

- ○ It remains the same.
- ○ It flips direction.
- ○ It becomes an equal sign.
- ○ It disappears.

What happens to the inequality sign when both sides of an inequality are multiplied by a negative number?

Hint: Consider the rules of inequalities when multiplying.

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○ It remains the same.
○ It flips direction.
○ It becomes an equal sign.
○ It disappears.

Part 2: comprehension and Application

Which of the following represents the solution set of the inequality y > 2x + 3 on a graph?

Hint: Think about how the graph of the inequality would look.

○ A solid line with shading above it.
○ A dashed line with shading above it.
○ A solid line with shading below it.
○ A dashed line with shading below it.

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○ A dashed line with shading above it.
○ A solid line with shading below it.
○ A dashed line with shading below it.

When graphING the inequality y ≤ -x + 4, which of the following statements are true?

Hint: Consider the characteristics of the boundary line and the shaded region.

☐ The boundary line is solid.
☐ The boundary line is dashed.
☐ The region below the line is shaded.

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☐ The region above the line is shaded.

When graphING the inequality y ≤ -x + 4, which of the following statements are true?

Hint: Consider the characteristics of the boundary line and shading.

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☐ The boundary line is dashed.
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☐ The region above the line is shaded.

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☐ The boundary line is solid.
☐ The boundary line is dashed.
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Solve the inequality 2(x - 3) ≤ 4x + 6 and describe the solution set.

Hint: Work through the steps to isolate x and determine the solution.

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Hint: Work through the steps to isolate x.

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Solve the inequality 2(x - 3) ≤ 4x + 6 and describe the solution set.

Hint: Work through the steps to isolate x.

If you have the inequality 3x - 5 > 7, what is the solution for x?

Hint: Isolate x to find the correct solution.

- ◯ x > 4
- ◯ x < 4
- ◯ x > 2
- ◯ x < 2

If you have the inequality 3x - 5 > 7, what is the solution for x?

Hint: Isolate x to find the solution.

- ◯ x > 4
- ◯ x < 4
- ◯ x > 2
- ◯ x < 2

If you have the inequality 3x - 5 > 7, what is the solution for x?

Hint: Isolate x to find the solution.

- ◯ x > 4
- ◯ x < 4
- ◯ x > 2
- ◯ x < 2

Part 3: Analysis, Evaluation, and Creation

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In the system of inequalities y > x + 2 and y < -x + 4, what is the nature of the solution set?

Hint: Consider the graphical representation of the inequalities.

◯ A single point
◯ A line segment
◯ A region of the plane
◯ No solution

In the system of inequalities y > x + 2 and y < -x + 4, what is the nature of the solution set?

Hint: Consider the relationship between the two inequalities.

◯ A single point
◯ A line segment
◯ A region of the plane
◯ No solution

In the system of inequalities y > x + 2 and y < -x + 4, what is the nature of the solution set?

Hint: Consider the relationship between the two inequalities.

◯ A single point
◯ A line segment
◯ A region of the plane
◯ No solution

Analyze the inequalities y ≥ 2x - 1 and y < x + 3. Which statements are true about their solution set?

Hint: Think about the characteristics of the inequalities and their graphs.

☐ The solution set is bounded.
☐ The solution set is unbounded.
☐ The solution set includes points on the line y = 2x - 1.
☐ The solution set does not include points on the line y = x + 3.

Analyze the inequalities y ≥ 2x - 1 and y < x + 3. Which statements are true about their solution set?

Hint: Think about the characteristics of the solution set.

☐ The solution set is bounded.
☐ The solution set is unbounded.
☐ The solution set includes points on the line y = 2x - 1.

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☐ The solution set does not include points on the line y = x + 3.

Analyze the inequalities y ≥ 2x - 1 and y < x + 3. Which statements are true about their solution set?

Hint: Consider the characteristics of the inequalities and their graphs.

☐ The solution set is bounded.
☐ The solution set is unbounded.
☐ The solution set includes points on the line y = 2x - 1.
☐ The solution set does not include points on the line y = x + 3.

Evaluate the system of inequalities x + y ≤ 5 and x - y ≥ 1. Which of the following points are solutions?

Hint: Test each point against the inequalities to determine if they are solutions.

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Evaluate the system of inequalities x + y ≤ 5 and x - y ≥ 1. Which of the following points are solutions?

Hint: Test each point against the inequalities.

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Create a real-world problem that can be modeled using a linear inequality, and explain how you would solve it.

Hint: Think about a scenario that involves constraints or limits.

Create a real-world problem that can be modeled using a linear inequality, and explain how you would solve it.

Hint: Think about a scenario that involves constraints.

Create a real-world problem that can be modeled using a linear inequality, and explain how you would solve it.

Hint: Think about constraints in a real-world scenario.

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