

Graphing Inequalities Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

Which symbol represents "greater than"?

Hint: Think about the symbols used in inequalities.

- <
- > ✓
- ≤
- ≥

■ The correct symbol for 'greater than' is '>'.

Which of the following are inequality symbols?

Hint: Identify the symbols that represent inequalities.

- =
- > ✓
- ≤ ✓
- ≠ ✓

■ The correct inequality symbols are '>', '≤', and '≠'.

Explain what an inequality is and provide an example.

Hint: Consider how inequalities compare two values.

An inequality is a mathematical statement that compares two expressions, showing that one is greater than, less than, or not equal to the other. An example is $x < 5$.

List the symbols used for "less than or equal to" and "greater than or equal to."

Hint: Think about the symbols that include equality.

1. Symbol for less than or equal to

| \leq

2. Symbol for greater than or equal to

| \geq

The symbols are ' \leq ' for 'less than or equal to' and ' \geq ' for 'greater than or equal to'.

What does a closed circle on a number line indicate?

Hint: Think about whether the number is included in the solution.

- The number is not included in the solution.
- The number is included in the solution. ✓**
- The inequality is strict.
- The inequality is not strict.

A closed circle indicates that the number is included in the solution.

Part 2: Application and Analysis

If you multiply both sides of the inequality $-3x < 9$ by -1 , what is the resulting inequality?

Hint: Remember to reverse the inequality sign when multiplying by a negative.

- $x > -3$ ✓
- $x < -3$
- $x > 3$
- $x < 3$

■ The resulting inequality is $x > -3$.

Which of the following are solutions to the inequality $2x + 3 \leq 7$?

Hint: Substitute the values into the inequality to check.

- $x = 1$ ✓
- $x = 2$ ✓
- $x = 0$ ✓
- $x = -1$

■ The solutions are $x = 1$, $x = 2$, and $x = 0$.

Graph the inequality $y \leq 2x + 1$ on a coordinate plane and describe the steps you took.

Hint: Consider how to plot the line and shade the appropriate region.

■ To graph $y \leq 2x + 1$, plot the line $y = 2x + 1$ as a solid line and shade below it.

When graphING the inequality $y > -x + 4$, what type of line should be used?

Hint: Think about whether the boundary line is included in the solution.

- Solid line
- Dashed line ✓
- Dotted line
- Thick line

■ A dashed line should be used for the inequality $y > -x + 4$.

Which points satisfy the inequality $y < 3x - 2$?

Hint: Test each point in the inequality to see if it holds true.

- (1, 1) ✓
- (0, -3) ✓
- (2, 5)
- (-1, -5)

■ The points (1, 1) and (0, -3) satisfy the inequality $y < 3x - 2$.

Explain how you would determine which region to shade when graphING the inequality $y \geq x - 1$.

Hint: Consider the line and the direction of the inequality.

■ To determine the shading region for $y \geq x - 1$, shade above the line $y = x - 1$ since the inequality includes equality.

Part 3: Evaluation and Creation

Which statement best describes the solution to the system of inequalities $y > 2x$ and $y < -x + 3$?

Hint: Think about how the two regions interact.

- The solution is the intersection of the two regions. ✓
- The solution is the union of the two regions.

- There is no solution.
- The solution is a single point.
- The solution is the intersection of the two regions.

Which of the following scenarios can be modeled by an inequality?

Hint: Consider situations that involve limits or thresholds.

- A budget limit of \$100. ✓
- A minimum age requirement of 18 years. ✓
- An exact temperature of 72°F.
- A speed limit of 65 mph. ✓

The scenarios that can be modeled by an inequality are a budget limit of \$100, a minimum age requirement of 18 years, and a speed limit of 65 mph.

Create a real-world problem that can be solved using a system of inequalities and describe how you would solve it.

Hint: Think about constraints and how they can be represented mathematically.

An example could be planning a budget for a party with constraints on food and entertainment costs, which can be represented as a system of inequalities.