

Inequalities On A Graph Worksheet

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Part 1: Building a Foundation

Which symbol represents a strict inequality?

Hint: Think about the symbols used in inequalities.

- \geq
- \leq
- $>$
- $=$

Which of the following are non-strict inequalities? (Select all that apply)

Hint: Consider the symbols that allow for equality.

- $>$
- $<$
- \geq
- \leq

Explain the difference between a strict inequality and a non-strict inequality.

Hint: Consider how each type of inequality treats equality.

List the symbols used for inequalities and provide a brief description of each.

Hint: Think about the common symbols and their meanings.

1. What does '>' mean?

2. What does '<' mean?

3. What does '≥' mean?

4. What does '≤' mean?

On a number line, how is the inequality $x > 3$ represented?

Hint: Visualize how the number line would look for this inequality.

- A closed circle on 3 with shading to the right
- An open circle on 3 with shading to the right
- A closed circle on 3 with shading to the left
- An open circle on 3 with shading to the left

Part 2: Application and Analysis

If $3x + 5 > 11$, what is the solution for x ?

Hint: Solve the inequality step by step.

- $x > 2$
- $x < 2$
- $x > -2$
- $x < -2$

Consider the inequality $2y - 4 \leq 8$. Which of the following are solutions for y ? (Select all that apply)

Hint: Rearrange the inequality to find possible values for y .

- $y = 5$
- $y = 6$
- $y = 7$

$y = 4$

A company wants to produce at least 100 units of a product. Write an inequality to represent this situation and solve for the minimum number of units needed if each batch produces 20 units.

Hint: Think about how to express the total production in terms of batches.

Which graph correctly represents the system of inequalities $y > 2x + 1$ and $y \leq -x + 4$?

Hint: Consider the slopes and intercepts of the lines.

- Graph A
- Graph B
- Graph C
- Graph D

Analyze the following system of inequalities: $y < 3x - 2$ and $y \geq x + 1$. Which points are solutions to this system? (Select all that apply)

Hint: Evaluate each point against the inequalities.

- (1, 2)
- (0, 0)
- (2, 5)
- (3, 7)

Explain how you would determine the feasible region for a system of inequalities on a graph.

Hint: Consider the steps involved in graphically representing inequalities.

Part 3: Evaluation and Creation

Which of the following scenarios can be best modeled by the inequality $x + y \leq 10$?

Hint: Think about constraints that involve two variables.

- A budget constraint where x and y are expenses and the total budget is \$10.
- A temperature range where x is the minimum and y is the maximum temperature.
- A time constraint where x is hours worked and y is hours of leisure.
- A distance constraint where x is miles traveled by car and y is miles traveled by bike.

Evaluate the following statements about inequalities in real-world contexts. Which are true? (Select all that apply)

Hint: Consider the applications of inequalities in various fields.

- Inequalities can represent constraints in optimization problems.
- Inequalities are only used in mathematical contexts, not real-world scenarios.
- Inequalities can help in decision-making processes.
- Inequalities cannot be used to model growth trends.

Create a real-world problem that can be modeled using a system of inequalities. Describe the problem and provide the inequalities that represent it.

Hint: Think about a scenario involving constraints and multiple variables.