

## Inequalities On A Graph Worksheet Questions and Answers PDF

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### Part 1: Building a Foundation

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**Which symbol represents a strict inequality?**

*Hint: Think about the symbols used in inequalities.*

- $\geq$
- $\leq$
- $>$  ✓
- $=$

■ The correct answer is the symbol that indicates a strict relationship without equality.

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

*Hint: Consider the symbols that allow for equality.*

- $>$
- $<$
- $\geq$  ✓
- $\leq$  ✓

■ Non-strict inequalities include symbols that allow for equality.

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

*Hint: Consider how each type of inequality treats equality.*

**| A strict inequality does not include equality, while a non-strict inequality does.**

**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?

**| Greater than.**

2. What does '<' mean?

**| Less than.**

3. What does '≥' mean?

**| Greater than or equal to.**

4. What does '≤' mean?

**| Less than or equal to.**

**| Common symbols include  $>$ ,  $<$ ,  $\geq$ , and  $\leq$ , each representing different relationships.**

**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

■ The correct representation involves an open circle and shading to the right.

## Part 2: Application and Analysis

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

*Hint: Solve the inequality step by step.*

- $x > 2$  ✓**
- $x < 2$
- $x > -2$
- $x < -2$

■ The solution involves isolating  $x$  to find its range.

**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  $y$ .*

- $y = 5$
- $y = 6$  ✓**
- $y = 7$  ✓**
- $y = 4$  ✓**

■ Identify values of  $y$  that satisfy the inequality after solving it.

**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.*

■ The inequality can be expressed as  $20x \geq 100$ , where  $x$  is the number 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

■ The correct graph will show the regions defined by both inequalities.

**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)**

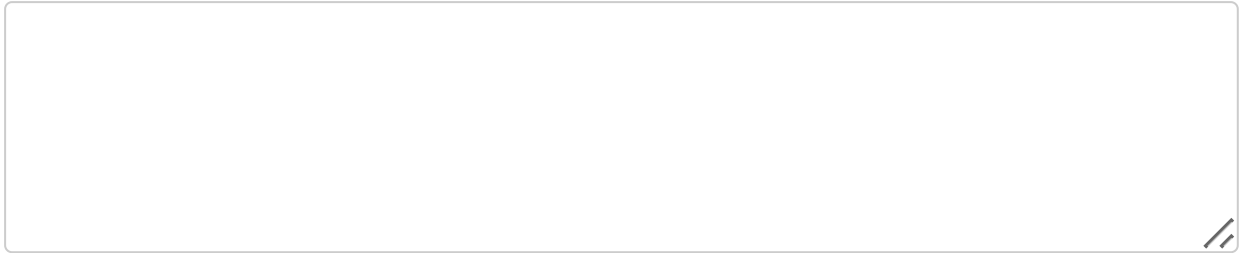
*Hint: Evaluate each point against the inequalities.*

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

■ Identify points that satisfy both inequalities in the system.

**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.*



The feasible region is determined by graphically representing each inequality and finding the intersection.

### Part 3: Evaluation and Creation

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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.

The correct scenario involves a constraint on the total of two quantities.

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.

True statements will reflect the practical use of inequalities in decision-making.

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.

**| The problem should involve multiple constraints that can be expressed as inequalities.**