

Quadratic Inequalities Quiz

Mathematics · Practice Test · 17 Questions

1. Why is the solution of $x^2 - 25 > 0$ written as two intervals?

- A) Values inside -5 and 5 satisfy inequality
- B) Values outside -5 and 5 satisfy inequality
- C) It is required by scientific notation
- D) Only one interval exists

2. Which notation is commonly used to describe solution sets of inequalities?

- A) $\{x|-6 \leq x \leq 6\}$
- B) $\{x|x \leq -6 \text{ or } x > 6\}$
- C) Interval notation
- D) Scientific Notation

3. Which notation represents all real numbers greater than 3?

- A) $(3, ?)$
- B) $[3, ?)$
- C) $(-?, 3)$
- D) $(-?, 3]$

4. What are the solutions of $x^2 - 64 \geq 0$?

- A) $(-8, 8)$
- B) $(-?, -8] \cup [8, ?)$
- C) $(-?, -8) \cup (8, ?)$
- D) $[-8, 8]$

5. Why should a test point be substituted into an inequality?

- A) To identify the correct shaded region
- B) To calculate the boundary equation
- C) To find the vertex
- D) To determine the slope

6. Which method is most appropriate for verifying whether a point satisfies a quadratic inequality?

- A) Measure the coordinates using the graph only
- B) Substitute the coordinates into the inequality
- C) Calculate the discriminant
- D) Check the y-intercept

7. Which point meets the condition $x^2 + y \leq 20$?

- A) (4, 4)
- B) (2, 18)
- C) (3, 5)
- D) (5, 1)

8. Which point does not satisfy $x^2 + y < 9$?

- A) (1, 6)
- B) (0, 0)
- C) (2, 1)
- D) (-1, 2)

9. How are critical values related to solution intervals?

- A) They serve as midpoints of intervals
- B) They serve as boundaries of intervals
- C) They define the y-intercepts
- D) They are irrelevant to intervals

10. Which explanation correctly identifies the solution region of $x^2 + y > 25$?

- A) The region lies below the boundary curve
- B) The region lies above the boundary curve
- C) The region is the curve itself
- D) The region is empty

11. Which student uses the correct reasoning to solve $x^2 - 81 > 0$?

- A) The solution lies between the critical values
- B) The solution lies outside the critical values
- C) The solution is only the critical values
- D) The solution is all real numbers

12. What are the solutions of the quadratic inequality $x^2 + x - 6 < 0$?

- A) $x \leq -3$ or $x > 2$
- B) $-3 < x < 2$
- C) $x < -3$ or $x > 2$
- D) $-3 \leq x \leq 2$

13. Which quadratic inequality has the point (2, 5) as a solution?

- A) $x^2 + y > 12$
- B) $x^2 + y \leq 10$
- C) $x^2 + y < 5$
- D) $x^2 + y > 20$

14. A student states that $x^2 - 144 > 0$ has solution $(-12, 12)$. How should the statement be judged?

- A) Incorrect because exterior intervals satisfy inequality
- B) Correct because interior intervals satisfy inequality
- C) Correct because endpoints are included
- D) Incorrect because the boundary is included

15. Which solution set satisfies $x^2 - 1 > 0$?

- A) $(-\infty, -1) \cup (1, \infty)$
- B) $(-\infty, -1] \cup [1, \infty)$
- C) $(-1, 1)$
- D) $[-1, 1]$

16. Which notation represents all values between -4 and 4 excluding endpoints?

- A) $(-4, 4)$
- B) $[-4, 4]$
- C) $(-\infty, -4) \cup (4, \infty)$
- D) $(-4, 4]$

17. Which observation correctly compares $x^2 + y < 16$ and $x^2 + y \leq 16$?

- A) Only one graph changes the axis
- B) Only one graph includes the boundary
- C) Both graphs are identical
- D) Neither graph is a circle