Quadratic Inequalities Quiz

Mathematics · Answer Key · 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 <= x <= 6}

B) {x|x <= -6 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 $x^2 - 64 >= 0$?

A) (-8, 8)

B) (-?, -8] U [8, ?)

C) (-?, -8) U (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 $x^2 + y <= 20$?

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) $x <= -3$ or $x > 2$
B) $-3 < x < 2$
C) $x < -3$ or $x > 2$
D) $-3 <= x <= 2$

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

A) $x^2 + y > 12$
B) $x^2 + y <= 10$
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) (-?, -1) U (1, ?)
B) (-?, -1] U [1, ?)
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) (-?, -4) U (4, ?)
D) (-4, 4]

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

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