Quadratic Inequalities and Graphing

Mathematics · Answer Key · 15 Questions

1. Why are open circles used for x^2-9 > 0 at -3 and 3?

A) -3 and 3 are included
B) -3 and 3 are excluded
C) The graph is solid
D) The roots are imaginary

2. Why is shading used on a number line graph?

A) To label the axis
B) To indicate variable names
C) To indicate solution regions
D) To mark the origin

3. Which boundary type is used for x^2 + y > 16?

A) Solid
B) Dashed
C) Curved
D) Vertical

4. Which interval notation represents all values between -5 and 5 without including endpoints?

A) [-5, 5]
B) (-5, 5)
C) (-5, 5]
D) [-5, 5)

5. Which statement best describes x^2 + 9 < 0?

A) No real values satisfy
B) Negative values only
C) All real values
D) Only positive values

6. Why does x^2 + 4 < 0 have no real solution?

A) Critical values are repeated
B) Square values cannot be negative
C) The graph is a line
D) The inequality is undefined

7. Which inequality has the solution set (-4, 4)?

A) x^2 - 16 < 0
B) x^2 - 16 > 0
C) x^2 + 16 < 0
D) x^2 + 16 > 0

8. Which symbol indicates that endpoints are excluded on a number line?

A) Closed circle
B) Open circle
C) Square bracket
D) Solid line

9. Which inequality symbol indicates that endpoints are included?

A) >
B) <
C) >=
D) None of the above

10. What is the correct evaluation of a student shading (-7, 7) for x^2 - 49 > 0?

A) Incorrect, should be outside roots
B) Correct, should be between roots
C) Incorrect, should be a single point
D) Correct, should be a solid line

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

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

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

A) (1, 1)
B) (0, 0)
C) (3, 2)
D) (1, 2)

13. How are critical values related to solution intervals?

A) They are midpoints
B) They are boundaries
C) They are the vertices
D) They are always zero

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

A) Solution between critical values

B) Solution outside critical values

C) Solution is only positive

D) Solution is only negative

15. 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) x = -3, x = 2