Inequalities and Intervals Quiz

Mathematics · Practice Test · 17 Questions

1. Which point satisfies $x^2 + y <= 10$?

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

2. Which symbol indicates that endpoints are included in a number line solution?

A) Open circles
B) Closed circles
C) Dashed lines
D) Arrows

3. Why does $x^2 - 4 > 0$ produce two separate intervals?

A) Values between roots satisfy
B) Values beyond both roots satisfy
C) Roots are excluded
D) Inequality is linear

4. Why are brackets used in the interval [-3, 3]?

A) Endpoints are excluded
B) Endpoints are included
C) Values are negative
D) Values are positive

5. For the inequality $x^2 - 25 < 0$, which values of x satisfy the condition?

A) $x < -5$ or $x > 5$
B) $-5 < x < 5$
C) $x > 25$
D) $x < -25$

6. Why does $x^2 - 36 < 0$ use closed circles at -6 and 6?

A) The endpoints satisfy the inequality
B) The endpoints are outside the graph
C) The roots are imaginary
D) The inequality is greater than

7. Which set-builder notation represents (-3, 3)?

A) {x | -3 < x < 3}
B) {x | x < -3 or x > 3}
C) {x | x <= -3}
D) {x | x >= 3}

8. Which interval represents the solution of $x^2 - 100 < 0$?

A) [-10, 10]
B) (-10, 10)
C) (-10, 10]
D) [-10, 10)

9. Which solution set satisfies $x^2 - 9 < 0$?

A) x < -3 or x > 3
B) -3 < x < 3
C) x < 9
D) x > 3

10. Which interval represents all values less than -2?

A) (-2, ?)
B) (-?, -2)
C) [-2, ?)
D) (-?, -2]

11. Which graph represents the inequality y < x - 9?

A) Shaded region below a parabola
B) Shaded region beside a line
C) Shaded region inside a circle
D) Shaded region above a line

12. A bridge remains stable when $x^2 - 64 < 0$. Which interval represents stability?

A) Values from -8 through 8
B) Values beyond -8 and 8
C) x > 64
D) x < -8

13. Which notation represents the set {x | x < -2}?

A) (-?, -2]
B) (-?, -2)
C) [-2, ?)
D) (-2, ?)

14. Which statement correctly compares $x^2 - 16 < 0$ and $x^2 - 16 > 0$?

A) They have the same vertices
B) Their solution intervals are complementary
C) Both include the endpoints
D) Both are linear

15. Which equation forms the boundary of $x^2 + y <= 16$?

A) $x - y = 16$
B) $x^2 + y = 16$
C) $x + y^2 = 16$
D) $x + y = 4$

16. Why is the boundary dashed for $x + y < 9$?

A) The graph is decreasing
B) The boundary is not included
C) The inequality is quadratic
D) The points are negative

17. Why are brackets used in [-5, 5]?

A) -5 and 5 are excluded
B) -5 and 5 are included
C) The interval is infinite
D) The values are complex