Fundamentals of Algebra

Algebra · Practice Test · 15 Questions

1. Who is historically recognized as the 'father of algebra' for his 9th-century treatise on solving linear and quadratic equations?

A) Euclid
B) Muhammad ibn Musa al-Khwarizmi
C) Diophantus
D) Isaac Newton

2. In the context of the fundamental theorem of algebra, how many complex roots does a polynomial of degree 'n' have?

A) n-1
B) n
C) n+1
D) 2n

3. What is the value of 'x' in the equation 2x + 5 = 15?

A) 5
B) 10
C) 7.5
D) 2.5

4. Which property of algebra states that a(b + c) = ab + ac?

A) Associative property
B) Commutative property
C) Distributive property
D) Identity property

5. What is the result of squaring a binomial (a + b)^2?

A) a^2 + b^2
B) a^2 + ab + b^2
C) a^2 + 2ab + b^2
D) a^2 - 2ab + b^2

6. In algebraic geometry, what is the geometric representation of a linear equation of the form ax + by = c?

A) A parabola
B) A hyperbola
C) A circle
D) A straight line

7. Which mathematical symbol is used to represent the set of all real numbers?

A) N
B) Z
C) Q
D) R

8. What is the solution to the quadratic equation x^2 - 4 = 0?

A) 2 and -2
B) 4 and -4
C) 1 and -1
D) 0 and 4

9. What is the term for a polynomial with exactly two terms?

A) Monomial
B) Binomial
C) Trinomial
D) Polynomial

10. According to the order of operations (PEMDAS/BODMAS), which operation is performed first?

A) Addition
B) Multiplication
C) Parentheses
D) Exponents

11. What does the discriminant (b^2 - 4ac) of a quadratic equation indicate about its roots?

A) The sum of roots
B) The nature of roots
C) The y-intercept
D) The degree of the polynomial

12. What is the value of any non-zero number raised to the power of zero?

A) 0
B) 1
C) The number itself
D) Undefined

13. Which algebraic structure consists of a set equipped with an operation that combines two elements to form a third?

A) Group
B) Vector
C) Matrix
D) Scalar

14. In a Cartesian coordinate system, what does the variable 'm' usually represent in the slope-intercept form y = mx + b?

A) Y-intercept
B) X-coordinate
C) Slope
D) Origin

15. What is the result of x^a * x^b?

A) x^(a+b)
B) x^(a-b)
C) x^(ab)
D) (x^a)^b