

High School Algebra Fundamentals

Algebra · Practice Test · 20 Questions

1. What is the discriminant of a quadratic equation $ax^2 + bx + c = 0$?

- A) $b^2 - 4ac$
- B) $b^2 + 4ac$
- C) $\sqrt{b^2 - 4ac}$
- D) $-b \pm \sqrt{b^2 - 4ac}$

2. Which of the following represents the factorised form of $x^2 - 9$?

- A) $(x-3)(x-3)$
- B) $(x+3)(x-3)$
- C) $(x+9)(x-1)$
- D) $(x-9)(x+1)$

3. For a function $f(x) = 2x + 5$, what is the value of $f(3)$?

- A) 8
- B) 10
- C) 11
- D) 13

4. What is the slope of the line represented by the equation $y = -3x + 4$?

- A) 4
- B) 3
- C) -3
- D) -4

5. What is the simplified form of $(x^3)^2$?

- A) x^5
- B) x^6
- C) x^9
- D) $2x^3$

6. What is the solution for x in the equation $2x + 7 = 15$?

- A) $x = 3$
- B) $x = 4$
- C) $x = 8$
- D) $x = 11$

7. Which term describes the point where a graph crosses the y-axis?

- A) x-intercept
- B) Gradient
- C) y-intercept
- D) Asymptote

8. What is the result of x^5 divided by x^2 ?

- A) x^3
- B) x^7
- C) x^{10}
- D) $x^{2.5}$

9. The expression x^0 is equal to which value for $x \neq 0$?

- A) 0
- B) 1
- C) x
- D) undefined

10. What are the roots of the equation $x^2 - 5x + 6 = 0$?

- A) 2 and 3
- B) -2 and -3
- C) 1 and 6
- D) -1 and -6

11. Which of the following is a binomial expression?

- A) $3x$
- B) $x^2 + 2x + 1$
- C) $5x - 4$
- D) x^3

12. What is the expansion of $(x + 2)^2$?

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

13. If a line is parallel to $y = 2x + 1$, what must its slope be?

- A) -2
- B) 1
- C) 2
- D) -0.5

14. What is the degree of the polynomial $4x^3 - 2x^2 + 7$?

- A) 4
- B) 3
- C) 2
- D) 7

15. The process of expressing a polynomial as a product of its simpler factors is called:

- A) Expansion
- B) Simplification
- C) Factorisation
- D) Differentiation

16. Which identity represents the difference of two cubes $a^3 - b^3$?

- A) $(a-b)(a^2+ab+b^2)$
- B) $(a-b)(a^2-ab+b^2)$
- C) $(a+b)(a^2-ab+b^2)$
- D) $(a-b)^3$

17. What is the value of 2^{-1} ?

- A) -2
- B) 0.5
- C) 1
- D) 2

18. A vertical line has an undefined:

- A) y-intercept
- B) x-intercept
- C) Slope
- D) Constant

19. In the equation $y = mx + c$, what does 'c' represent?

- A) Slope
- B) Rate of change
- C) y-intercept
- D) Variable

20. What is the sum of the angles in a triangle, often solved using algebraic substitution?

- A) 90 degrees
- B) 180 degrees
- C) 270 degrees
- D) 360 degrees