Advanced Middle School Algebra Mastery

Basic Algebra · Answer Key · 25 Questions

1. What is the result of simplifying the expression 3(2x - 5) - (4x + 7)?

A) 2x - 22
B) 2x - 8
C) 10x - 22
D) 10x - 8

2. If 5(y - 2) = 3y + 14, what is the value of y?

A) 4
B) 8
C) 12
D) 2

3. Which expression is equivalent to (x + 4)(x - 4) - (x^2 - 16)?

A) 2x^2
B) 32
C) 0
D) 8x

4. The formula for the volume of a cylinder is V = ?r^2h. Solving for h gives:

A) h = V / (?r^2)
B) h = V - ?r^2
C) h = ?r^2 / V
D) h = V? / r^2

5. What is the value of x in the equation 2/3x + 5 = 11?

A) 4
B) 6
C) 9
D) 12

6. Expand and simplify (2a + 3b)^2:

A) 4a^2 + 6ab + 9b^2
B) 4a^2 + 12ab + 9b^2
C) 2a^2 + 12ab + 3b^2
D) 4a^2 + 9b^2

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7. Factorise the expression x^2 - 7x + 12:

A) (x - 3)(x - 4)
B) (x + 3)(x + 4)
C) (x - 2)(x - 6)
D) (x + 2)(x + 6)

8. If 3^x = 81, what is the value of x?

A) 2
B) 3
C) 4
D) 5

9. Simplify (x^5 * x^3) / x^2:

A) x^4
B) x^6
C) x^7
D) x^10

10. What is the gradient (slope) of the line represented by 2x + 4y = 8?

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

11. Solve for x: 4(x + 3) = 2(x + 10)

A) x = 2
B) x = 4
C) x = 6
D) x = 8

12. What is the constant term in the expansion of (x + 5)(x - 2)?

A) 10
B) -10
C) 3
D) -3

13. Identify the y-intercept of the linear equation y = -3x + 7:

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

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14. Simplify the expression: (12a^4b^2) / (3a^2b^5)

A) 4a^2b^3
B) 4a^2/b^3
C) 4b^3/a^2
D) 9a^2/b^3

15. What is the value of x if 7x - 4 = 3x + 12?

A) 2
B) 4
C) 6
D) 8

16. Which of the following is the correct factorisation of 9x^2 - 25?

A) (3x - 5)^2
B) (3x + 5)^2
C) (3x - 5)(3x + 5)
D) (9x - 5)(9x + 5)

17. If x = -3, what is the value of 2x^2 - 4x + 5?

A) 5
B) 11
C) 35
D) -1

18. Which equation represents a line passing through (0, 5) with a gradient of 2?

A) y = 5x + 2
B) y = 2x + 5
C) y = 2x - 5
D) y = 5x - 2

19. Solve for x: 0.5x + 1.2 = 3.2

A) 2
B) 4
C) 6
D) 8

20. Expand -2x(x - 4):

A) -2x^2 - 8x
B) -2x^2 + 8x
C) 2x^2 + 8x
D) -2x^2 - 4x

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21. What is the coefficient of x in the expression 5 - 3x + 2x^2?

A) 5
B) -3
C) 2
D) -1

22. Simplify the following expression: (2x^3)^2

A) 2x^5
B) 4x^6
C) 2x^6
D) 4x^5

23. Given the formula A = 1/2bh, express b in terms of A and h:

A) b = 2A/h
B) b = A/2h
C) b = Ah/2
D) b = 2h/A

24. Solve the inequality: 3x - 2 > 7

A) x > 3
B) x < 3
C) x > 5/3
D) x < 5/3

25. Find the value of x if 3(x + 1) = 2x + 7

A) 2
B) 3
C) 4
D) 5