Acumen Teach
To the point
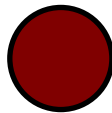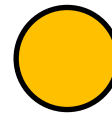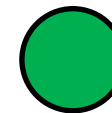
Algebra Master-box

Equations—Algebra—Logic—Correspondence

Acumen Teach
To the point

Easy (12 Questions)	/21
Moderate(12 Questions)	/25
Difficult(12 Questions)	/31
Total Marks	**/77**

How did you do?

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🕐 2 hours   ❓ 38 Questions

Easy Questions

1. SIMPLIFY - $5x + 3x$

$$8x \quad (1)$$

2. SOLVE - $2x = 14 \div 2$

$$x = 7$$

$$x = \underline{\quad 7 \quad} \quad (1)$$

3. EVALUATE $x + y$ IF $x = 1$ AND $y = 4$

Substitute x with 1 and y with 4

$$1 + 4 = 5 \quad (1)$$

4. SOLVE - $x - 5 = 0$

$$0 + 5 = x$$
$$x = 5$$

$$x = \underline{\quad 5 \quad}$$

5. SIMPLIFY $6x - 4x$

$$2x \quad (1)$$

6. SOLVE - $4x = 20$ $\div 4$

$x = 5$

$x = \underline{5}$ (1)

(1 marks)

7. EVALUATE $2x + 5$ IF $x = 3$

Substitute x with 3.

$2(3) + 5 = 6 + 5 = \underline{11}$ (1)

(1 marks)

8. SOLVE $x + 7$

if $x = 3$ (previous q)

$3 + 7 = 10$

$x = \underline{3}$ (1)

(1 marks)

9. SIMPLIFY $3x^2 + x^2$

$4x^2$ (1)

(1 marks)

10. SOLVE - $7x = 21$ $\div 7$

$x = 21$

$x = \underline{21}$ (1)

(1 marks)

11. EVALUATE $4x-3$ IF $x=2$

Sub x with 2

$4(2) - 3 =$ (1) $8-3 = 5$ (1)

12. SOLVE -

SOLVE & EXPLAIN

Q11.

(Sub value)

(2)

$x = \underline{2}$

Substitution is the replacement

of a variable with a value.

Because x was being multiplied

by 4, We did

" $4(2)$ "

Where 4 is multiplied by 2

Moderate Questions

13. SOLVE $3(x-2)=9$ Multiply $x-2$ by 3

$3x - 6 = 9$ (1)

$3x = 9$

$x = 3$ (1)

$x = \underline{\quad 3 \quad}$

(2 marks)

14. SIMPLIFY $\dfrac{4x^3}{8x^3}$

$\dfrac{4x^3}{8x^3}$ (1) $\dfrac{4}{8} = \dfrac{1}{2}$ (1)

(2 marks)

15. SOLVE $x^2 = 25$

$x = \sqrt{25}$ (1)

$x = 5$

$x = \underline{\quad 5 \quad}$

(2 marks)

16. EVALUATE $x^2 + 3x + 4$ IF $x = 1$

Substitute x with 1.

$1^2 + 3(1) + 4$ (1)

$1 + 4 + 4 = 9$ (1)

$\underline{9}$

(2 marks)

17. SOLVE $x^2 - 4 = 0$

$x^2 = 4 + 0$ (1)

$x = \sqrt{4}$

$x = 2$ (1)

$x = \underline{\quad 1 \quad}$

18. SIMPLIFY $\dfrac{8x^2}{4x}$

$\dfrac{8x^2}{4x} = \dfrac{8x^2(2)}{2x} = \dfrac{x}{2}$ (1)

$\underline{\dfrac{x}{2}}$

19. SOLVE $\dfrac{x+3}{3} = 2$

$\dfrac{x+3}{3} = 2 \rightarrow x+3 = 2\times 3 \longrightarrow x = 2\times 3 - 3 = x = 3$

$x = \underline{\quad 3 \quad}$

20. EVALUATE $2x^2 - 4x + 2$ IF $x = 2$

Substitute x with 2.

$2(2)^3 - 4(2) + 2$ (1)

$8 - 8 + 2 = \underline{2}$ (1)

21. SOLVE $3x - 9 = 0$

$$3x = 9 \quad (1)$$
$$x = 3 \quad (1)$$

$x = \underline{\quad 1 \quad}$

(2 marks)

22. SIMPLIFY $\dfrac{10x^3}{5x}$

$$\dfrac{2\,x^2}{x} \quad (1) = \underline{2x} \quad (1)$$

(2 marks)

23. SOLVE $(x-3)(x+2) = 0$

$$x - 3 = 0$$
$$x + 2 = 0 \quad (1) \quad x = 3 \text{ or } -2 \quad (1)$$

$x = \underline{\quad 3, -2 \quad}$

(2 marks)

24. EVALUATE $3x^2 - 2x + 1$ ~~~~~~ IF $x = (-1)$

$$3(-1)^2 - 2(-1) + 1 = 0$$
$$3 + 2 + 1 = 6$$

(2 marks)

Difficult Questions

25. SOLVE $2x^2 - 3x + 1 = 0$

(1) $(2x-1)(x-1) = 0$ (1)

So $x = \frac{1}{2}$ or 1 (1)

$x = \underline{\frac{1}{2}, 1}$

(3 marks)

26. SIMPLIFY $\dfrac{12x^2 - 4}{4x - 2}$

$\dfrac{6x^2 - 2}{4x - 1}$ (3)

(3 marks)

27. SOLVE $2x^2 - 3x + 1 = 0$

(1)   (1)
$(x-1)(x^2 - 2x + 2) = 0$

So, $x = 1$ (1)

$x = \underline{1}$

(3 marks)

28. EVALUATE $x^3 - 3x^2 + 4x = 0$ IF $x = -1$

$(-1)^3 - 2(-1)^2 - 3 \quad (1) \quad (1) \quad (1)$
$= -1 - 2 - 1 - 3) = 7$

(3 marks)

29. SOLVE $2x^2 - 5 = 0$

$2x^2 = 5 \quad (1)$
$x^2 = 2.5$
$x = \sqrt{2.5} \quad (1) \quad =$

$x = \dfrac{+ 5/2}{-}$

(3 marks)

30. SIMPLIFY $\dfrac{x^3 - 27}{x - 3}$

$\dfrac{(x-3)(x^2+3x+9)}{x-3} \quad (2) \quad = x^2+3x+9 \quad (4)$

(3 marks)

31. SOLVE $x^4 - 1 = 0$

$(x^2-1)(x^2+1) = 0$

$\therefore \quad x^2 = 1 \quad, \quad x = \pm 1 \qquad (3)$

$x = \underline{\pm 1}$

(3 marks)

32. EVALUATE $x^4 - x^3 + x - 1$ IF $x = 2$

$$2^4 - 2^3 + 2 - 1 \,^{(1)} = 16 - 8 + 2 \,^{(1)} = \underline{9} \quad (1)$$

33. SOLVE $\dfrac{x^3 - 8}{x - 2} = 0$

$$^{(1)} \quad (x - 2)(x^2 + 2x + 4) = 0 \quad ^{(1)}$$

$$x = 2 \,^{(1)}$$

$$x = \underline{2}$$

34. SIMPLIFY $\dfrac{x^4 - 1}{x^2 - 1}$ $\quad (1)$

$$\dfrac{(x^2 + 1)(x - 1)(x + 1)}{(x - 1)(x + 1) \,^{(1)}} = \underline{x^2 + 1} \,^{(1)}$$

35. SOLVE $3x^3 - 6x^2 - 3x + 6 = 0$

$$^{(1)} \quad (3x - 3)(x^2 - 2x - 2) = 0 \,^{(1)}$$

$$x = 1 \quad (1)$$

$$x = \underline{1}$$

36. EVALUATE $x^4 + x^3 - x^2 + x + 1$ if $x = (-2)$

$(-2)^4 + (-2)^3 - (-2)^2 + (-2) = 16 - 8 - 4 - 2 + 1 = 1$

(1)   (1)   (4)

(3 marks)