

Algebraic Expressions

MCQ Test, Set 09

Time: 30 minutes

Maximum marks: 25

Name: _____ Class: _____ Date: _____

- There are 25 questions. Each has exactly one correct answer: choose A, B, C or D.
- Each correct answer carries 1 mark. There is no negative marking.
- The key sheet and worked solutions are at the end of this test.

1. Which of the following is NOT a constant?

- A. $-\frac{1}{3}$ B. 7 C. 0 D. q

2. "The sum of p and 3" in symbolic form is

- A. $p - 3$ B. $3p$ C. $p + 3$ D. $3 - p$

3. The number of terms in $-\frac{x^2z}{2} - 4xz^2 - 7 + 8x^2 - 7x^3$ is

- A. 4 B. 5 C. 6 D. 7

4. $4yz^3$ written as a product of its factors is

- A. $4 \times y \times z \times 3$ B. $4 \times y \times z$
C. $4 + y + z + z + z$ D. $4 \times y \times z \times z \times z$

5. The co-efficient of a^3 in $-\frac{3}{2}a^3bc^3$ is

- A. $-\frac{3}{2}$ B. $-\frac{3}{2}bc^3$ C. $\frac{3}{2}bc^3$ D. bc^3

6. Which of the following is a like term of $-9pr^3$?

- A. $-9p$ B. $-9p^3r$ C. $2r^3p$ D. $-9mr^3$

7. $9m + 3t + 9m + t =$

- A. $18m + 4t$ B. $18m + 3t$ C. $22mt$ D. $4m + 18t$

8. $4t - 14t =$

- A. $-10t$ B. $-18t$ C. $10t$ D. $18t$

9. Which of the following expressions contains three monomials?

- A. $6t^3 + 3mt^2$ B. $5t^2 - 3m^2t^2 + 7mt^2 - 8m^2t$
C. $7m^2t + 4t^3 + 7m^2$ D. $8m$

10. Every polynomial is also a

- A. binomial B. trinomial C. multinomial D. monomial

11. The degree of $9x^3y^4$ is

- A. 2 B. 9 C. 4 D. 7

12. The degree of $6c^3 + 7c - a^5c^2 + 8a^2c^4$ is
A. 7 **B.** 3 **C.** 5 **D.** 4
-
13. The value of $6 - 5x$ when $x = -4$ is
A. -26 **B.** 26 **C.** -14 **D.** -4
-
14. The value of $-3x^2 + x - 9$ when $x = -2$ is
A. 25 **B.** -23 **C.** -14 **D.** 1
-
15. The sum of $2a^2 + 7b^2 + 5ab$ and $-5a^2 + 7b^2 - ab$ is
A. $3a^2 + 14b^2 + 4ab$ **B.** $7a^2 + 6ab$ **C.** $-3a^2 + 14b^2 + 4ab$ **D.** $-7a^2 + 14b^2 + 4ab$
-
16. The sum of $8b + 8c$, $8b + 9z$ and $4c - 2z$ is
A. $16b + 12c - 7z$ **B.** $16b + 12c + 7z$ **C.** $16b + 12c + 11z$ **D.** $16b + 4c + 11z$
-
17. Subtract $-8y$ from $12y$.
A. $20y$ **B.** $-20y$ **C.** $4y$ **D.** $-4y$
-
18. If $A = 4a^2 + 4a - 2$ and $B = a^2 + 7a - 4$, then $2A - 3B =$
A. $5a^2 + 29a - 16$ **B.** $5a^2 + a$ **C.** $11a^2 + 29a - 16$ **D.** $5a^2 - 13a + 8$
-
19. Subtract $3b^2 - 6bc + 8$ from $7b^2 - 6$.
A. $-4b^2 - 6bc + 14$ **B.** $4b^2 - 14 + 6bc$ **C.** $10b^2 + 2 - 6bc$ **D.** $4b^2 + 2 - 6bc$
-
20. $6xy \times (-3xy) \times 6x^2y =$
A. $-108x^4y^3$ **B.** $9x^4y^3$ **C.** $108x^4y^3$ **D.** $-108x^2y$
-
21. $6x^2y(6xy + 8tx - 2) =$
A. $36x^2y + 48tx^3y - 12x^2y$ **B.** $36x^3y^2 + 8tx - 2$
C. $36x^3y^2 + 48tx^3y + 12x^2y$ **D.** $36x^3y^2 + 48tx^3y - 12x^2y$
-
22. $(3x - 5)(x - 9) =$
A. $3x^2 - 32x + 45$ **B.** $3x^2 + 32x + 45$ **C.** $3x^2 - 32x - 45$ **D.** $3x^2 + 45$
-
23. $(2m + 4n)(m - 3n) =$
A. $2m^2 - 2mn + 12n^2$ **B.** $2m^2 - 2mn - 12n^2$ **C.** $2m^2 + 2mn - 12n^2$ **D.** $2m^2 - 12n^2$
-
24. $3x(3x - y) - 2y(4x + y) =$
A. $9x^2 - 11xy + 2y^2$ **B.** $-9x^2 + 11xy + 2y^2$ **C.** $9x^2 + 5xy + 2y^2$ **D.** $9x^2 - 11xy - 2y^2$
-
25. $6y - \{2z - (6y - 5z)\} =$
A. $12y + 3z$ **B.** $7z$ **C.** $12y - 7z$ **D.** $3z$
-

Key sheet

1. D	2. C	3. B	4. D	5. B
6. C	7. A	8. A	9. C	10. C
11. D	12. A	13. B	14. B	15. C
16. B	17. A	18. D	19. B	20. A
21. D	22. A	23. B	24. D	25. C

Solutions

1. Which of the following is NOT a constant?

0, $-\frac{1}{3}$ and 7 have fixed values.

q can take various values, so it is not a constant.

Ans: (D) q

2. "The sum of p and 3" in symbolic form is

Sum means add.

So it is $p + 3$.

Ans: (C) $p + 3$

3. The number of terms in $-\frac{x^2z}{2} - 4xz^2 - 7 + 8x^2 - 7x^3$ is

Terms are separated by + and - signs.

The terms are $-\frac{x^2z}{2}$, $-4xz^2$, -7 , $8x^2$, $-7x^3$.

So there are 5 terms.

Ans: (B) 5

4. $4yz^3$ written as a product of its factors is

z^3 means z multiplied 3 times.

$$4yz^3 = 4 \times y \times z \times z \times z$$

Ans: (D) $4 \times y \times z \times z \times z$

5. The co-efficient of a^3 in $-\frac{3}{2}a^3bc^3$ is

$$-\frac{3}{2}a^3bc^3 = \left(-\frac{3}{2}bc^3\right) \times a^3$$

So the co-efficient of a^3 is $-\frac{3}{2}bc^3$.

Ans: (B) $-\frac{3}{2}bc^3$

6. Which of the following is a like term of $-9pr^3$?

Like terms have the same literal factors.

$2r^3p$ has the literal factors $r^3p = pr^3$, the same as $-9pr^3$.

Ans: (C) $2r^3p$

7. $9m + 3t + 9m + t =$

$$9m + 3t + 9m + t$$

$$= (9 + 9)m + (3 + 1)t$$

$$= 18m + 4t$$

Ans: (A) $18m + 4t$

8. $4t - 14t =$

$$4t - 14t$$

$$= (4 - 14)t$$

$$= -10t$$

Ans: (A) $-10t$

9. Which of the following expressions contains three monomials?

A trinomial has three monomials.

$7m^2t + 4t^3 + 7m^2$ has three terms.

Ans: (C) $7m^2t + 4t^3 + 7m^2$

10. Every polynomial is also a

A polynomial has one or more monomials, and each monomial is a term.

So every polynomial is a multinomial (an expression of one or more terms).

Ans: (C) multinomial

11. The degree of $9x^3y^4$ is

Add the powers of the variables:

$$3 + 4 = 7$$

Ans: (D) 7

12. The degree of $6c^3 + 7c - a^5c^2 + 8a^2c^4$ is

Degrees of the terms are 3, 1, 7, 6.

The greatest is 7.

Ans: (A) 7

13. The value of $6 - 5x$ when $x = -4$ is

Put $x = -4$:

$$6 - 5(-4)$$

$$= 6 + 20$$

$$= 26$$

Ans: (B) 26

14. The value of $-3x^2 + x - 9$ when $x = -2$ is

Put $x = -2$:

$$-3(-2)^2 + (-2) - 9$$

$$= -12 - 2 - 9$$

$$= -23$$

Ans: (B) -23

15. The sum of $2a^2 + 7b^2 + 5ab$ and $-5a^2 + 7b^2 - ab$ is

$$\begin{aligned} & 2a^2 + 7b^2 + 5ab - 5a^2 + 7b^2 - ab \\ &= (2 - 5)a^2 + (7 + 7)b^2 + (5 - 1)ab \\ &= -3a^2 + 14b^2 + 4ab \end{aligned}$$

Ans: (C) $-3a^2 + 14b^2 + 4ab$

16. The sum of $8b + 8c$, $8b + 9z$ and $4c - 2z$ is

Add the like terms column by column:

$$\begin{array}{rrr} 8b & +8c & \\ 8b & & +9z \\ & 4c & -2z \\ \hline 16b & +12c & +7z \end{array}$$

Ans: (B) $16b + 12c + 7z$

17. Subtract $-8y$ from $12y$.

$$\begin{aligned} & (12y) - (-8y) \\ &= 12y + 8y \\ &= (12 + 8)y \\ &= 20y \end{aligned}$$

Ans: (A) $20y$

18. If $A = 4a^2 + 4a - 2$ and $B = a^2 + 7a - 4$, then $2A - 3B =$

$$\begin{aligned} & 2(4a^2 + 4a - 2) - 3(a^2 + 7a - 4) \\ &= 8a^2 + 8a - 4 - 3a^2 - 21a + 12 \\ &= (8 - 3)a^2 + (8 - 21)a + (-4 + 12) \\ &= 5a^2 - 13a + 8 \end{aligned}$$

Ans: (D) $5a^2 - 13a + 8$

19. Subtract $3b^2 - 6bc + 8$ from $7b^2 - 6$.

Change the signs of $3b^2 - 6bc + 8$ and add:

$$\begin{array}{rrr} 7b^2 & -6 & \\ 3b^2 & +8 & -6bc \\ (-) & (-) & (+) \\ \hline 4b^2 & -14 & +6bc \end{array}$$

$$= 4b^2 - 14 + 6bc$$

Ans: (B) $4b^2 - 14 + 6bc$

20. $6xy \times (-3xy) \times 6x^2y =$

Multiply the numbers and add the powers of the same letters:

$$\begin{aligned} &= (6 \times (-3) \times 6)(x \times x \times x^2)(y \times y \times y) \\ &= -108x^4y^3 \end{aligned}$$

Ans: (A) $-108x^4y^3$

21. $6x^2y(6xy + 8tx - 2) =$

Multiply $6x^2y$ with every term inside the bracket:

$$\begin{aligned} &= (6x^2y)(6xy) + (6x^2y)(8tx) + (6x^2y)(-2) \\ &= 36x^3y^2 + 48tx^3y - 12x^2y \end{aligned}$$

Ans: (D) $36x^3y^2 + 48tx^3y - 12x^2y$

22. $(3x - 5)(x - 9) =$

$$\begin{aligned} (a + b)(c + d) &= ac + ad + bc + bd \\ &= 3x^2 - 27x - 5x + 45 \\ &= 3x^2 - 32x + 45 \end{aligned}$$

Ans: (A) $3x^2 - 32x + 45$

23. $(2m + 4n)(m - 3n) =$

$$\begin{aligned} (a + b)(c + d) &= ac + ad + bc + bd \\ &= 2m^2 - 6mn + 4mn - 12n^2 \\ &= 2m^2 - 2mn - 12n^2 \end{aligned}$$

Ans: (B) $2m^2 - 2mn - 12n^2$

24. $3x(3x - y) - 2y(4x + y) =$

Multiply out each bracket and add like terms:

$$\begin{aligned} &= 9x^2 - 3xy - 8xy - 2y^2 \\ &= 9x^2 + (-3 - 8)xy - 2y^2 \\ &= 9x^2 - 11xy - 2y^2 \end{aligned}$$

Ans: (D) $9x^2 - 11xy - 2y^2$

25. $6y - \{2z - (6y - 5z)\} =$

Remove the round brackets first, then the curly brackets:

$$\begin{aligned} &= 6y - \{2z - 6y + 5z\} \\ &= 6y - \{7z - 6y\} \\ &= 6y - 7z + 6y \\ &= 12y - 7z \end{aligned}$$

Ans: (C) $12y - 7z$
