

Algebraic Expressions

MCQ Test, Set 01

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 a constant?

- A. $2a$ B. a C. $a + 2$ D. -13

2. "8 divided by m " in symbolic form is

- A. $\frac{8}{m}$ B. $8 - m$ C. $8m$ D. $\frac{m}{8}$

3. The number of terms in $6 - \frac{3b^3}{4} - 5a^3$ is

- A. 2 B. 3 C. 4 D. 5

4. $5mn^2$ written as a product of its factors is

- A. $5 \times m \times n \times 2$ B. $5 + m + n + n$
C. $5 \times m \times n \times n$ D. $5 \times m \times n$

5. The co-efficient of xz^2 in $\frac{1}{6}xy^2z^2$ is

- A. $\frac{1}{6}y^2$ B. $\frac{1}{6}$ C. $-\frac{1}{6}y^2$ D. y^2

6. Which of the following is a like term of $-6a^2b$?

- A. $-6a^2$ B. $9ba^2$ C. $-6bt$ D. $-6ab^2$

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

- A. $18m^2 + 10$ B. $28m$ C. $18m + 10$ D. 28

8. $2y - 13y =$

- A. $-11y$ B. $-15y$ C. $15y$ D. $11y$

9. Which of the following is a trinomial?

- A. $5b^2c^2 + 4bc^2$ B. $7b^2c^2 - 9c^2 + 3b^2c - 2c$
C. $-4c^2 + 3b^2 - 4b^3$ D. $2bc$

10. Which of the following is a multinomial but not a polynomial?

- A. $3 + \frac{4}{t}$ B. $\frac{4}{3}t + 1$ C. $4t^2 + 3$ D. $t^2 - 3t + 4$

11. The degree of $-2p^2q^5t^3$ is

- A. 3 B. 2 C. 5 D. 10

12. The degree of $3m^2 + 4m^3n^3 - 2m^5n^3$ is
A. 5 **B.** 8 **C.** 3 **D.** 2
-
13. The value of $4b - 2c - 5$ when $b = -5$ and $c = -2$ is
A. 19 **B.** 21 **C.** -16 **D.** -21
-
14. The value of $x^2 + 3xz - 2z^2$ when $x = 2$ and $z = -1$ is
A. 0 **B.** 8 **C.** 2 **D.** -4
-
15. The sum of $3n^2 - 3t^2 + 5nt$ and $7n^2 + 6t^2 + 8nt$ is
A. $-4n^2 - 9t^2 - 3nt$ **B.** $10n^2 + 3t^2 + 13nt$ **C.** $10n^2 - 3t^2 + 13nt$ **D.** $10n^2 + 9t^2 + 13nt$
-
16. The sum of $7a - 5b$, $3b - 9m$ and $8a + 5m$ is
A. $15a + 2b - 4m$ **B.** $-a - 2b - 14m$ **C.** $15a - 8b - 4m$ **D.** $15a - 2b - 4m$
-
17. Subtract $-9m$ from $8m$.
A. $-m$ **B.** $-17m$ **C.** m **D.** $17m$
-
18. If $A = 6p^2 - 4p + 5$ and $B = 2p^2 + 7p + 9$, then $A - 2B =$
A. $2p^2 - 11p - 4$ **B.** $2p^2 - 18p - 13$ **C.** $10p^2 + 10p + 23$ **D.** $2p^2 + 10p + 23$
-
19. Subtract $5a^2 - 2ac - 7$ from $6a^2 - 1$.
A. $11a^2 - 8 - 2ac$ **B.** $a^2 - 8 - 2ac$ **C.** $a^2 + 6 + 2ac$ **D.** $-a^2 - 2ac - 6$
-
20. $5p^3q \times 2p^3q \times 3p^2q =$
A. $10p^8q^3$ **B.** $30p^8q^3$ **C.** $30p^{18}q$ **D.** $30p^8q$
-
21. $-4m^2(7mp + 3m^2n - 4m) =$
A. $-28m^3p - 12m^4n - 16m^3$ **B.** $-28m^3p + 3m^2n - 4m$ **C.** $-28m^2p - 12m^4n + 16m^3$ **D.** $-28m^3p - 12m^4n + 16m^3$
-
22. $(4q - 8)(2q - 6) =$
A. $8q^2 + 48$ **B.** $8q^2 - 40q - 48$ **C.** $8q^2 - 40q + 48$ **D.** $8q^2 + 40q + 48$
-
23. $(4y + z)(y - z) =$
A. $4y^2 - z^2$ **B.** $4y^2 - 3yz + z^2$ **C.** $4y^2 - 3yz - z^2$ **D.** $4y^2 + 3yz - z^2$
-
24. $6n(4n + t) - 4t(3n + t) =$
A. $24n^2 - 6nt - 4t^2$ **B.** $24n^2 + 18nt + 4t^2$ **C.** $-24n^2 + 6nt + 4t^2$ **D.** $24n^2 - 6nt + 4t^2$
-
25. $y - \{5y - (2z - 7z)\} =$
A. $-4y - 5z$ **B.** $-4y + 9z$ **C.** $6y + 5z$ **D.** $-4y + 5z$
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Key sheet

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

Solutions

1. Which of the following is a constant?

A constant has a fixed value.

-13 is a fixed number; the others contain the variable a .

Ans: (D) -13

2. "8 divided by m " in symbolic form is

8 divided by m is written $\frac{8}{m}$.

So it is $\frac{8}{m}$.

Ans: (A) $\frac{8}{m}$

3. The number of terms in $6 - \frac{3b^3}{4} - 5a^3$ is

Terms are separated by $+$ and $-$ signs.

The terms are 6 , $-\frac{3b^3}{4}$, $-5a^3$.

So there are 3 terms.

Ans: (B) 3

4. $5mn^2$ written as a product of its factors is

n^2 means n multiplied 2 times.

$$5mn^2 = 5 \times m \times n \times n$$

Ans: (C) $5 \times m \times n \times n$

5. The co-efficient of xz^2 in $\frac{1}{6}xy^2z^2$ is

$$\frac{1}{6}xy^2z^2 = \left(\frac{1}{6}y^2\right) \times xz^2$$

So the co-efficient of xz^2 is $\frac{1}{6}y^2$.

Ans: (A) $\frac{1}{6}y^2$

6. Which of the following is a like term of $-6a^2b$?

Like terms have the same literal factors.

$9ba^2$ has the literal factors $ba^2 = a^2b$, the same as $-6a^2b$.

Ans: (B) $9ba^2$

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

$$9m + 3 + 9m + 7$$

$$= (9 + 9)m + (3 + 7)$$

$$= 18m + 10$$

Ans: (C) $18m + 10$

8. $2y - 13y =$

$$2y - 13y$$

$$= (2 - 13)y$$

$$= -11y$$

Ans: (A) $-11y$

9. Which of the following is a trinomial?

A trinomial has three monomials.

$-4c^2 + 3b^2 - 4b^3$ has three terms.

Ans: (C) $-4c^2 + 3b^2 - 4b^3$

10. Which of the following is a multinomial but not a polynomial?

$\frac{4}{t} = 4t^{-1}$ has the power -1 , so it is not a monomial.

So $3 + \frac{4}{t}$ is a multinomial but not a polynomial.

Ans: (A) $3 + \frac{4}{t}$

11. The degree of $-2p^2q^5t^3$ is

Add the powers of the variables:

$$2 + 5 + 3 = 10$$

Ans: (D) 10

12. The degree of $3m^2 + 4m^3n^3 - 2m^5n^3$ is

Degrees of the terms are 2, 6, 8.

The greatest is 8.

Ans: (B) 8

13. The value of $4b - 2c - 5$ when $b = -5$ and $c = -2$ is

Put $b = -5$ and $c = -2$:

$$4(-5) - 2(-2) - 5$$

$$= -20 + 4 - 5$$

$$= -21$$

Ans: (D) -21

14. The value of $x^2 + 3xz - 2z^2$ when $x = 2$ and $z = -1$ is

Put $x = 2$ and $z = -1$:

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

$$= 4 - 6 - 2$$

$$= -4$$

Ans: (D) -4

15. The sum of $3n^2 - 3t^2 + 5nt$ and $7n^2 + 6t^2 + 8nt$ is

$$\begin{aligned} & 3n^2 - 3t^2 + 5nt + 7n^2 + 6t^2 + 8nt \\ &= (3 + 7)n^2 + (-3 + 6)t^2 + (5 + 8)nt \\ &= 10n^2 + 3t^2 + 13nt \end{aligned}$$

Ans: (B) $10n^2 + 3t^2 + 13nt$

16. The sum of $7a - 5b$, $3b - 9m$ and $8a + 5m$ is

Add the like terms column by column:

$$\begin{array}{rrr} 7a & -5b & \\ & 3b & -9m \\ 8a & & +5m \\ \hline 15a & -2b & -4m \end{array}$$

Ans: (D) $15a - 2b - 4m$

17. Subtract $-9m$ from $8m$.

$$\begin{aligned} & (8m) - (-9m) \\ &= 8m + 9m \\ &= (8 + 9)m \\ &= 17m \end{aligned}$$

Ans: (D) $17m$

18. If $A = 6p^2 - 4p + 5$ and $B = 2p^2 + 7p + 9$, then $A - 2B =$

$$\begin{aligned} & (6p^2 - 4p + 5) - 2(2p^2 + 7p + 9) \\ &= 6p^2 - 4p + 5 - 4p^2 - 14p - 18 \\ &= (6 - 4)p^2 + (-4 - 14)p + (5 - 18) \\ &= 2p^2 - 18p - 13 \end{aligned}$$

Ans: (B) $2p^2 - 18p - 13$

19. Subtract $5a^2 - 2ac - 7$ from $6a^2 - 1$.

Change the signs of $5a^2 - 2ac - 7$ and add:

$$\begin{array}{rrr} 6a^2 & -1 & \\ 5a^2 & -7 & -2ac \\ (-) & (+) & (+) \\ \hline a^2 & +6 & +2ac \end{array}$$

$$= a^2 + 6 + 2ac$$

Ans: (C) $a^2 + 6 + 2ac$

20. $5p^3q \times 2p^3q \times 3p^2q =$

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

$$\begin{aligned} &= (5 \times 2 \times 3)(p^3 \times p^3 \times p^2)(q \times q \times q) \\ &= 30p^8q^3 \end{aligned}$$

Ans: (B) $30p^8q^3$

21. $-4m^2(7mp + 3m^2n - 4m) =$

Multiply $-4m^2$ with every term inside the bracket:

$$= (-4m^2)(7mp) + (-4m^2)(3m^2n) + (-4m^2)(-4m)$$

$$= -28m^3p - 12m^4n + 16m^3$$

Ans: (D) $-28m^3p - 12m^4n + 16m^3$

22. $(4q - 8)(2q - 6) =$

$$(a + b)(c + d) = ac + ad + bc + bd$$

$$= 8q^2 - 24q - 16q + 48$$

$$= 8q^2 - 40q + 48$$

Ans: (C) $8q^2 - 40q + 48$

23. $(4y + z)(y - z) =$

$$(a + b)(c + d) = ac + ad + bc + bd$$

$$= 4y^2 - 4yz + yz - z^2$$

$$= 4y^2 - 3yz - z^2$$

Ans: (C) $4y^2 - 3yz - z^2$

24. $6n(4n + t) - 4t(3n + t) =$

Multiply out each bracket and add like terms:

$$= 24n^2 + 6nt - 12nt - 4t^2$$

$$= 24n^2 + (6 - 12)nt - 4t^2$$

$$= 24n^2 - 6nt - 4t^2$$

Ans: (A) $24n^2 - 6nt - 4t^2$

25. $y - \{5y - (2z - 7z)\} =$

Remove the round brackets first, then the curly brackets:

$$= y - \{5y - 2z + 7z\}$$

$$= y - \{5y + 5z\}$$

$$= y - 5y - 5z$$

$$= -4y - 5z$$

Ans: (A) $-4y - 5z$
