EXPRESSWALA ACADEMY

Algebraic Expressions

MCQ Test, Set 07

Time: 30 minutes | Maximum marks: 25

Name: _____ Class: _____ Date: _____

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

1. How many constants are there in the list $m, b, -7, 0, a, 3, 10$?

A. 4 **B.** 3 **C.** 2 **D.** 7

2. "8 more than one-third of p" in symbolic form is

A. $\frac{p}{3} + 8$ **B.** $3p + 8$ **C.** $\frac{p+8}{3}$ **D.** $\frac{p}{3} - 8$

3. The number of terms in $6n^2 + 7n + \frac{2m^2}{3}$ is

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

4. $8xz^2$ written as a product of its factors is

A. $8 \times x \times z$ **B.** $8 + x + z + z$

C. $8 \times x \times z \times z$ **D.** $8 \times x \times z \times 2$

5. The co-efficient of pt^3 in $4pqt^3$ is

A. 4 **B.** $-4q$ **C.** q **D.** $4q$

6. Which of the following is a like term of $9m^2t$?

A. $9bt$ **B.** $9mt^2$ **C.** $-7tm^2$ **D.** $9m^2$

7. $8a + 4a + 7a =$

A. $19a^2$ **B.** $19a$ **C.** 19 **D.** $19a^3$

8. $2y - 6y =$

A. $8y$ **B.** $-4y$ **C.** $4y$ **D.** $-8y$

9. Which of the following expressions has exactly two monomials?

A. $-6a^2 - 5ac^2$ **B.** $2a^2c$

C. $-7a^2c^2 - 6a^2c + 3c^2 - 4c$ **D.** $4a - 3c^3 - 5c^2$

10. Which of the following statements is false?

A. Every polynomial is a multinomial. **B.** Every multinomial is a polynomial.

C. $\frac{5}{4}x^2$ is a monomial. **D.** $x + \frac{4}{x}$ is a multinomial.

11. The degree of $\frac{4}{3}a^2b^5m^2$ is

A. 10 **B.** 5 **C.** 9 **D.** 3

12. The degree of $-8 + 9t^3 + 7m^3t^3 + 3m^4t^4$ is

A. 4 **B.** 17 **C.** 8 **D.** 0

13. The value of $-2a^2b$ when $a = -3$ and $b = 3$ is

A. -54 **B.** 36 **C.** 108 **D.** 54

14. The value of $7 - 4a$ when $a = -4$ is

A. -23 **B.** -9 **C.** -12 **D.** 23

15. The sum of $6p^2 - 5r^2 + 8pr$ and $3p^2 - 6r^2 - pr$ is

A. $9p^2 - 11r^2 - 7pr$ **B.** $3p^2 + r^2 + 9pr$ **C.** $9p^2 - 11r^2 + 7pr$ **D.** $9p^2 - 11r^2 + 9pr$

16. The sum of $2a + 3m$, $6a + b$ and $3b - 8m$ is

A. $8a - 11m + 4b$ **B.** $8a + 5m + 4b$ **C.** $8a - 5m + 4b$ **D.** $8a + 11m - 2b$

17. Subtract $-5p$ from $9p$.

A. $-14p$ **B.** $-4p$ **C.** $4p$ **D.** $14p$

18. If $A = 6q^2 - 7q + 6$ and $B = 6q^2 - 6q - 9$, then $A - 3B =$

A. $-12q^2 - 25q - 21$ **B.** $-12q^2 + 11q + 33$ **C.** $-12q^2 - q + 15$ **D.** $24q^2 - 25q - 21$

19. Subtract $2p^2 + 2pq + 1$ from $5p^2 + 3$.

A. $3p^2 + 4 + 2pq$ **B.** $-3p^2 + 2pq - 2$ **C.** $7p^2 + 4 + 2pq$ **D.** $3p^2 + 2 - 2pq$

20. $3x^3y^2 \times (-4xy) \times 6x^3y^3 =$

A. $-72x^7y^6$ **B.** $5x^7y^6$ **C.** $-72x^9y^6$ **D.** $72x^7y^6$

21. $5b(6bc + 7 + 8b) =$

A. $30b^2c + 35b + 40b^2$ **B.** $30b^2c + 7 + 8b$ **C.** $30bc + 35b + 40b^2$ **D.** $30b^2c + 35b - 40b^2$

22. $(2x + 5)(x - 3) =$

A. $2x^2 - 15$ **B.** $2x^2 - x - 15$ **C.** $2x^2 - x + 15$ **D.** $2x^2 + x - 15$

23. $(2x + 3y)(3x - 6y) =$

A. $6x^2 + 3xy - 18y^2$ **B.** $6x^2 - 3xy - 18y^2$ **C.** $6x^2 - 18y^2$ **D.** $6x^2 - 3xy + 18y^2$

24. $4x(4x + 5z) - 4z(x + 4z) =$

A. $16x^2 + 24xz + 16z^2$ **B.** $-16x^2 - 16xz + 16z^2$ **C.** $16x^2 + 16xz + 16z^2$ **D.** $16x^2 + 16xz - 16z^2$

25. $6x - \{3z + (5x + 5z)\} =$

A. $x + 2z$ **B.** $11x + 8z$ **C.** $11x + 2z$ **D.** $x - 8z$

Key sheet

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

Solutions

1. How many constants are there in the list $m, b, -7, 0, a, 3, 10$?

The constants are the fixed numbers 3, -7, 0, 10 (0 and negative numbers are constants too).
So there are 4 constants.

Ans: (A) 4

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2. "8 more than one-third of p" in symbolic form is

One-third of p is $\frac{p}{3}$; 8 more means add 8.
So it is $\frac{p}{3} + 8$.

Ans: (A) $\frac{p}{3} + 8$

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3. The number of terms in $6n^2 + 7n + \frac{2m^2}{3}$ is

Terms are separated by $+$ and $-$ signs.
The terms are $6n^2$, $7n$, $\frac{2m^2}{3}$.
So there are 3 terms.

Ans: (C) 3

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4. $8xz^2$ written as a product of its factors is

z^2 means z multiplied 2 times.
$8xz^2 = 8 \times x \times z \times z$

Ans: (C) $8 \times x \times z \times z$

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5. The co-efficient of pt^3 in $4pqt^3$ is

$4pqt^3 = (4q) \times pt^3$
So the co-efficient of pt^3 is $4q$.

Ans: (D) $4q$

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6. Which of the following is a like term of $9m^2t$?

Like terms have the same literal factors.
$-7tm^2$ has the literal factors $tm^2 = m^2t$, the same as $9m^2t$.

Ans: (C) $-7tm^2$

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7. $8a + 4a + 7a =$

$8a + 4a + 7a$
$= (8 + 4 + 7)a$
$= 19a$

Ans: (B) $19a$

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8. $2y - 6y =$

$2y - 6y$
$= (2 - 6)y$
$= -4y$

Ans: (B) $-4y$

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9. Which of the following expressions has exactly two monomials?

A binomial has two monomials.
$-6a^2 - 5ac^2$ has two terms.

Ans: (A) $-6a^2 - 5ac^2$

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10. Which of the following statements is false?

A multinomial such as $x + \frac{4}{x}$ need not be a polynomial.
So 'every multinomial is a polynomial' is false.

Ans: (B) Every multinomial is a polynomial.

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11. The degree of $\frac{4}{3}a^2b^5m^2$ is

Add the powers of the variables:
$2 + 5 + 2 = 9$

Ans: (C) 9

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12. The degree of $-8 + 9t^3 + 7m^3t^3 + 3m^4t^4$ is

Degrees of the terms are $0, 3, 6, 8$.
The greatest is 8.

Ans: (C) 8

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13. The value of $-2a^2b$ when $a = -3$ and $b = 3$ is

Put $a = -3$ and $b = 3$:
$-2(-3)^2(3)$
$= -54$

Ans: (A) -54

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14. The value of $7 - 4a$ when $a = -4$ is

Put $a = -4$:
$7 - 4(-4)$
$= 7 + 16$
$= 23$

Ans: (D) 23

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15. The sum of $6p^2 - 5r^2 + 8pr$ and $3p^2 - 6r^2 - pr$ is

$6p^2 - 5r^2 + 8pr + 3p^2 - 6r^2 - pr$
$= (6 + 3)p^2 + (-5 - 6)r^2 + (8 - 1)pr$
$= 9p^2 - 11r^2 + 7pr$

Ans: (C) $9p^2 - 11r^2 + 7pr$

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16. The sum of $2a + 3m$, $6a + b$ and $3b - 8m$ is

Add the like terms column by column:

$$\begin{array}{ccc} 2a & +3m & \\ 6a & & +b \\ & -8m & +3b \\ \hline 8a & -5m & +4b \end{array}$$

Ans: (C) $8a - 5m + 4b$

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17. Subtract $-5p$ from $9p$.

$(9p) - (-5p)$
$= 9p + 5p$
$= (9 + 5)p$
$= 14p$

Ans: (D) $14p$

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18. If $A = 6q^2 - 7q + 6$ and $B = 6q^2 - 6q - 9$, then $A - 3B =$

$(6q^2 - 7q + 6) - 3(6q^2 - 6q - 9)$
$= 6q^2 - 7q + 6 - 18q^2 + 18q + 27$
$= (6 - 18)q^2 + (-7 + 18)q + (6 + 27)$
$= -12q^2 + 11q + 33$

Ans: (B) $-12q^2 + 11q + 33$

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19. Subtract $2p^2 + 2pq + 1$ from $5p^2 + 3$.

Change the signs of $2p^2 + 2pq + 1$ and add:

$$\begin{array}{ccc} 5p^2 & +3 & \\ 2p^2 & +1 & +2pq \\ (-) & (-) & (-) \\ \hline 3p^2 & +2 & -2pq \end{array}$$

$= 3p^2 + 2 - 2pq$

Ans: (D) $3p^2 + 2 - 2pq$

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20. $3x^3y^2 \times (-4xy) \times 6x^3y^3 =$

Multiply the numbers and add the powers of the same letters:
$= (3 \times (-4) \times 6)(x^3 \times x \times x^3)(y^2 \times y \times y^3)$
$= -72x^7y^6$

Ans: (A) $-72x^7y^6$

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21. $5b(6bc + 7 + 8b) =$

Multiply $5b$ with every term inside the bracket:

$= (5b)(6bc) + (5b)(7) + (5b)(8b)$

$= 30b^2c + 35b + 40b^2$

Ans: (A) $30b^2c + 35b + 40b^2$

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22. $(2x + 5)(x - 3) =$

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

$= 2x^2 - 6x + 5x - 15$

$= 2x^2 - x - 15$

Ans: (B) $2x^2 - x - 15$

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23. $(2x + 3y)(3x - 6y) =$

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

$= 6x^2 - 12xy + 9xy - 18y^2$

$= 6x^2 - 3xy - 18y^2$

Ans: (B) $6x^2 - 3xy - 18y^2$

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24. $4x(4x + 5z) - 4z(x + 4z) =$

Multiply out each bracket and add like terms:

$= 16x^2 + 20xz - 4xz - 16z^2$

$= 16x^2 + (20 - 4)xz - 16z^2$

$= 16x^2 + 16xz - 16z^2$

Ans: (D) $16x^2 + 16xz - 16z^2$

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25. $6x - \{3z + (5x + 5z)\} =$

Remove the round brackets first, then the curly brackets:

$= 6x - \{3z + 5x + 5z\}$

$= 6x - \{8z + 5x\}$

$= 6x - 8z - 5x$

$= x - 8z$

Ans: (D) $x - 8z$