

Instructions:

1. This test contains 15 multiple-choice questions.
2. Each question has 4 choices. Choose the correct one.
3. Marks will be awarded for correct answers only.

Algebraic Expressions

1. The expression $\frac{5x^2-3x+7}{2} - \frac{2x^2+x-4}{4}$ simplifies to:
(a) $2x^2 - 1.75x + 4.5$
(b) $2x^2 - \frac{7x}{4} + \frac{9}{2}$
(c) $8x^2 - 7x + 18$
(d) $4x^2 - 3.5x + 9$
2. If $M = -a^2 + 2ab - b^2$ and $N = 3a^2 - 4ab + 2b^2$, find the value of $3M + 2N$.
(a) $3a^2 - 2ab + b^2$
(b) $3a^2 + 2ab + 5b^2$
(c) $7a^2 - 14ab + 7b^2$
(d) $-3a^2 + 6ab - 3b^2$
3. Which of the following is ****not**** a like term with $-7xy^2z$?
(a) $15xy^2z$
(b) $0.5y^2xz$
(c) $-3x^2yz$
(d) $\frac{xy^2z}{2}$
4. The perimeter of a regular hexagon is given by $18p + 24$. What is the length of one side?
(a) $3p + 4$
(b) $6p + 8$
(c) $9p + 12$
(d) $18p + 24$
5. Simplify: $0.25(8m - 12n + 16) + 0.5(6n - 4m + 2)$
(a) m
(b) $m + 5$

- (c) $2m - n + 5$
(d) $2m - 3n + 5$
6. The sum of an expression and $5x^2 - 8xy + 3y^2$ is $-2x^2 + 4xy - y^2$. What is the expression?
- (a) $-7x^2 + 12xy - 4y^2$
(b) $3x^2 - 4xy + 2y^2$
(c) $7x^2 - 12xy + 4y^2$
(d) $-3x^2 - 12xy + 2y^2$
7. How many terms are there in the fully expanded and simplified form of $3a(b + c) - 2b(a - c) + c(a + b)$?
- (a) 3
(b) 4
(c) 5
(d) 6
8. If the coefficient of x^3 in an expression is -4 and the coefficient of x^2 is 5 , what is the sum of these coefficients?
- (a) -9
(b) 9
(c) 1
(d) -1
9. A number y is multiplied by -3 , the result is increased by twice the number y , and then 10 is subtracted. The algebraic expression is:
- (a) $-3y + 2y - 10$
(b) $-3y + 2y + 10$
(c) $-3y + 2(y - 10)$
(d) $-3(y + 2y - 10)$
10. What is the result of subtracting $\frac{2}{3}(9p - 6q)$ from $\frac{3}{4}(8p + 4q)$?
- (a) $2p + 9q$
(b) $2p - 9q$
(c) $-2p + 9q$
(d) $14p + 3q$
11. For the expression $5 - 2x^2 + \frac{x}{2}$, which term has the smallest numerical coefficient?
- (a) The constant term
(b) The term in x^2

- (c) The term in x
- (d) Two terms have the same smallest coefficient.
12. The total number of fruits is represented by $7a + 5b$, where a represents boxes of apples and b boxes of bananas. If 3 boxes of apples and 2 boxes of bananas are removed, the expression for remaining fruits is:
- (a) $4a + 3b$
- (b) $10a + 7b$
- (c) $4a + 7b$
- (d) $10a + 3b$
13. Simplify: $-\{2x - [3y - (4z - x) + 2y]\}$
- (a) $-3x + 5y - 4z$
- (b) $-x + y - 4z$
- (c) $-x - 5y + 4z$
- (d) $3x - 5y + 4z$
14. When $8 - 3k + 7k^2$ is written in standard form (descending powers of k), the first term is:
- (a) 8
- (b) $-3k$
- (c) $7k^2$
- (d) $3k$
15. Which pair of expressions has a sum of zero?
- (a) $6mn^2$ and $6m^2n$
- (b) $\frac{1}{2}pq$ and $-0.5qp$
- (c) $4x - 3y$ and $3y - 4x$
- (d) $a^2 + b^2$ and $-a^2 - b^2$