

**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  $-a^2 - b^2$