



## Class 9 Mathematics Practice Worksheet: Polynomials

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### Section A: Objective Type Questions (1 Mark Each)

- What is the degree of the polynomial  $7x^3 - 4x^2 + 3x - 2$ ?
  - 1
  - 2
  - 3
  - 4
- Which of the following is not a polynomial?
  - $2x^2 - 3x + 4$
  - $\sqrt{x} + x - 1$
  - $x^3 + 7x - 5$
  - $4x^2 + 2x$
- The zero of the polynomial  $p(x) = 5x - 15$  is:
  - 1
  - 2
  - 3
  - 4
- Which of the following expressions is a trinomial?
  - $2x - 3$
  - $x^2 + 4x + 5$
  - $3x^3$
  - $6x - 9$





**Section B: Short Answer Questions (2 Marks Each)**

5. Write the degree of the following polynomials:
- a)  $5x^4 + 7x^3 - 2x + 6$
  - b)  $3y^2 - y$
6. Find the zero of the polynomial  $p(x) = 2x - 8$ .
7. Factorize the following using identities:
- a)  $(x - 5)^2 - 16$
  - b)  $9x^2 - 25$
8. Give one example each of:
- a) A binomial of degree 3.
  - b) A monomial of degree 5.
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**Section C: Short Answer Questions (3 Marks Each)**

9. Use the Remainder Theorem to find the remainder when  $p(x) = x^3 + 4x^2 - 5x + 6$  is divided by  $x - 2$ .
10. If  $(x - 3)$  is a factor of  $p(x) = x^3 - 2x^2 + kx - 6$ , find the value of  $k$ .
11. Factorize the polynomial:
- a)  $x^2 + 9x + 20$
12. Verify whether  $x = -2$  and  $x = 3$  are the zeroes of the polynomial  $p(x) = x^2 - x - 6$ .
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### Section D: Long Answer Questions (4 Marks Each)

13. Factorize the following polynomials:

a)  $x^3 - 5x^2 + 8x - 4$

b)  $4x^2 - 12x + 9$

14. Find all the zeroes of the polynomial  $p(x) = x^2 + 2x - 8$ , and verify the relationship between the zeroes and the coefficients.

15. Use the Factor Theorem to determine whether  $x + 2$  is a factor of  $p(x) = x^3 + 6x^2 + 11x + 6$ .

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### Section E: Higher Order Thinking Skills (HOTS)

16. Prove that  $(x + y)^3 = x^3 + y^3 + 3xy(x + y)$  using algebraic identities.

17. If the length of a rectangle is given by the polynomial  $x + 4$  and its area is given by  $x^2 + 6x + 8$ , find the width of the rectangle.

18. Expand the expression  $(3x - 2y + 1)^2$  using suitable algebraic identities.

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