



# DELHI PUBLIC SCHOOL FIROZABAD

(UNDER THE AEGIS OF DELHI PUBLIC SCHOOL SOCIETY EAST OF KAILASH NEWDELHI)

(A SENIOR SECONDARY SCHOOL)

AFFILIATED TO CBSE, AFFILIATION NO. 2133064 SCHOOL NO: 61225



## MATHEMATICS (Worksheet)

Name: \_\_\_\_\_  
Roll No.: \_\_\_\_\_

Class: IX

### I. Answer the following questions:

1. Find the remainder when the polynomial  $p(x) = x^4 + 2x^3 - 3x^2 + x + 1$  is divided by  $g(x) = x - 2$ .
2. If the polynomials  $(2x^3 + ax^2 + 3x - 5)$  and  $(x^3 + x^2 - 2x + a)$  leave the same remainder when divided by  $(x - 2)$ , find the value of a. Also, find the remainder in each case.
3. Factorise
  - (i)  $ab + bc + ax + cx$
  - (ii)  $6ab - b^2 + 12ac - 2bc$
4. Factorise  $1 + x + y - z + xy - yz - zx - xyz$
5. Factorise
  - (i)  $(x^3 - x)$
  - (ii)  $(18a^2x^2 - 32)$
  - (iii)  $(2a^5 - 32a)$
6. Factorise
  - (i)  $x^2 - 1 - 2a - a^2$
  - (ii)  $1 + 2ab - (a^2 + b^2)$
  - (iii)  $(x^4 + 4)$
  - (iv)  $(x^2 + 4/x^2)$
  - (v)  $(x^4 + x^2y^2 + y^4)$ .

7. Factorise

- (i)  $81 - 16x^2$
- (ii)  $(3a + 5b)^2 - 4c^2$
- (iii)  $(a + b)^3 - a - b$
- (iv)  $x^2 + 2xy + y^2 - a^2 + 2ab - b^2$
- (v)  $9 - a^2 + 2ab - b^2$
- (vi)  $9a^2 + 3a - 8b - 64b^2$
- (vii)  $16x^4 - 1$

8. Factorise

$$x^2 + 9x + 18$$

9. Factorise

$$x^2 + 3\sqrt{3}x - 30$$

10. Factorise

$$(p + q)^2 - 20(p + q) - 125.$$

11. Factorise

$$9x^2 - 22x + 8.$$

12. Factorise

$$42 - r - r^2$$

13. Factorise

$$5\sqrt{5}x^2 + 30x + 8\sqrt{5}.$$

14. Factorise

$$8a^3 + b^3 + 12a^2b + 6ab^2$$

15. Expand:

$$(2a + 3b + 4c)^2$$

16. Expand:

- (i)  $(4a + 5b)^3$
- (ii)  $(4 - 1/3x)^3$