Class x

Mathematics

Chapter- 2

Polynomials

1. Define polynomials.
2. Write the different types of polynomials. Give one example of each.
3. Define zeros of a polynomials.
4. Find the zeros of the following quadratic polynomials and verify the relationship between the zeros and the coefficients.
   A) $x^2 - 2x - 8$.
   B) $4x^2 - 4x - 3$.
   C) $5x^2 - 4 - 8x$.

5. Find the quadratic polynomials, the sum of whose zeros is 0 and their products is -1. Hence, find the zeros of the polynomials.

6. Find the quadratic polynomials whose zeros are 2 and -6. Verify the relationship between the coefficient and the zeros of the polynomials.

7. Find the quadratic polynomials whose zeros are 2/3 and -1/4. Verify the relation between the coefficient and zeros of the polynomial.

8. If (x + a) is a factor of ($2x^2 + 2ax + 5x + 10$) then find the value of a.

9. If 2/3 and -3 are the zeros of the quadratic polynomial ($ax^2 + 7x + b$) then find the value of a and b.

10. Apply division algorithm to check if g(x) = $x^2 - 3x + 2$ is a factor of the polynomial f(x)= $x^4 - 2x^3 - x + 2$.

11. Obtain all zeros of the polynomial ($2x^3 - 4x - x^2 + 2$) , if two of it's zeros are √2 and - √2.

12. Verify that 3, -2, 1 are the zeros of the cubic polynomial p(x)= $x^3 - 2x^2 - 5x + 6$ and verify the relationship between it's zeros and coefficients.

13. Find a cubic polynomial whose zeros are 2, -3,and 4.

14. If the polynomial ($x^4 + 2x^3 + 8x^2 + 12x + 18$) is divided by another polynomial ($3x^2 + 5$) , the remainder comes out to be (px + q) . Find the value of p and q.

15. If 1 and -2 are two zeros of the polynomial ($x^3 - 4x^2 - 7x + 10$), find it's third zero.

16. If 2 and -2 are two zeros of the polynomial $2x^4 - 5x^3 - 11x^2 + 20x + 12$, find all the zeros of the given polynomial.

17. Obtain all the zeros of the polynomial $x^4 + x^3 - 14x^2 - 2x + 24$. If two of it's zeros are √2 and - √2.

18. Find all the zeros of $2x^4 - 13x^3 + 19x^2 + 7x - 3$. If two of it's zeros are (2 + √3) and (2 - √3).

19 find the quotient and remainder when :

A) f(x)= $x^3 - 3x^2 + 5x - 3$ is divided by g(x)= $x^2 - 2$.

B) f(x)= $x^4 - 5x + 6$ is divided g(x)= $2 - x^2$