

Class – X
Lesson Plan (2020-21)

Topic: POLYNOMIALS

Brief Description of the lesson: In this chapter students will be taught about polynomial and its types and relation between zeroes and coefficients and operation on polynomials.

UN Sustainable Goals to be achieved (if any): Quality Education

Objectives: (put Bloom's level)

I - Specific Objectives:

Students will be able :

1. To tell the possible number of zeroes for a given polynomial. (k)
2. To find zeros of linear, quadratic and cubic polynomial algebraically. (U)
3. To understand and verify the relationship between Zeroes and coefficients of a polynomial (U)
4. To understand the geometrical meaning of zeroes and to read zeroes of a polynomial from given graph. (U)
5. To find the polynomial when zeroes are known.(A)
6. To divide a polynomial of higher order by a polynomial of equal or lower order.(An)
7. To express the division of two polynomials using division algorithm.(Sn /E)
8. To find the remaining zeroes of the given polynomial

II - Behavioral Objectives (how polynomials are useful in our daily life)

1. In physics to measure of acceleration or to express energy and to understand projectile motion.
2. To understand where the curve will change its direction.

Process / Activities

Activity (to introduce the lesson)

Consider the given algebraic expression, $4x^3 + 3x^2 - 5x - 6$

(Prestructural)

Ask the students to write observations on the following statements

1. The given algebraic expression is a polynomial
2. It is a polynomial in one variable
3. The coefficient of x is -5
4. Its constant term is - 6
5. Its degree is 3
6. It is a cubic polynomial
7. It has 4 terms
8. The coefficient of x^2 is 3
9. If we remove - 5x term then it will become a trinomial
10. If we remove any of one term, then it will become a trinomial
11. If we add one more term having degree 4 then it will become a polynomial of degree 4.

- Activity (to support learning) **(Unistructural)**

Students will be given any two polynomials and will be asked.

1. Which of these polynomials can be divided by the other?
2. What will be the degree of quotient?
3. What will be the degree of the remainder?

Take different examples of $p(x)$ and $g(x)$ and find $q(x)$, the quotient and $r(x)$, the remainder.

➤ **Skills (as per subject).**

1. Drawing Skill
2. Reasoning Skill
3. Application Skill

Expected Learning Outcomes

Students would be able:

1. To tell the possible number of zeroes for a given polynomial. (k)
2. To find zeros of linear, quadratic and cubic polynomial algebraically. (U)
3. To understand and verify the relationship between Zeroes and coefficients of a polynomial
4. To understand the geometrical meaning of zeroes and to read zeroes of a polynomial from given graph. (U)
5. To find the polynomial when zeroes are known. (A)
6. To divide a polynomial of higher order by a polynomial of equal or lower order. (An)
7. To express the division of two polynomials using division algorithm. (Sn /E)
8. To find the remaining zeroes of the given polynomial
9. To learn In physics to measure of acceleration or to express energy and to understand projectile motion.
10. To understand where the curve will change its direction.

Assessment:-

1. Find the zeros of quadratic polynomial $p(x) = x^2 + 5x + 6$
2. Find a quadratic polynomial whose zeros are 5 and -5
3. Find the zeros of cubic polynomial $p(x) = x^3 - 6x^2 + 3x + 10$ and verify the relationship between the zeros and their coefficients.
4. Find the number of zeros of the given polynomials through graphically.
 - a. $f(x) = -3$
 - b. $f(x) = x - 4$
 - c. $f(x) = 2x^2 - 4x + 5$

SOLO:

Prestructural: Students have knowledge of various terminologies like terms, coefficients, expressions, types of polynomials, remainder theorem, factor theorem and identities.

Unistructural: Students will be able to understand the concept of geometrical meaning of polynomials.

Multistructural: Students will be able to find zeros of polynomials either by splitting the middle term or with the help of coefficients.

Relational: Student were relating the topic of Polynomials with the same topic Polynomials which they have previously learnt in class 9th and they also learnt to draw graphs of given equation in previous classes which they are utilizing here to find out number of zeros of a polynomial graphically.

Extended Abstract: Also they will use the concept of finding zeros of a polynomial in further chapters wherever there is any linear polynomial, quadratic polynomial etc Apply the concept of polynomials in science subject in teaching *PROJECTILE MOTION*