CHAPTER 2
POLYNOMIALS
DAY 1

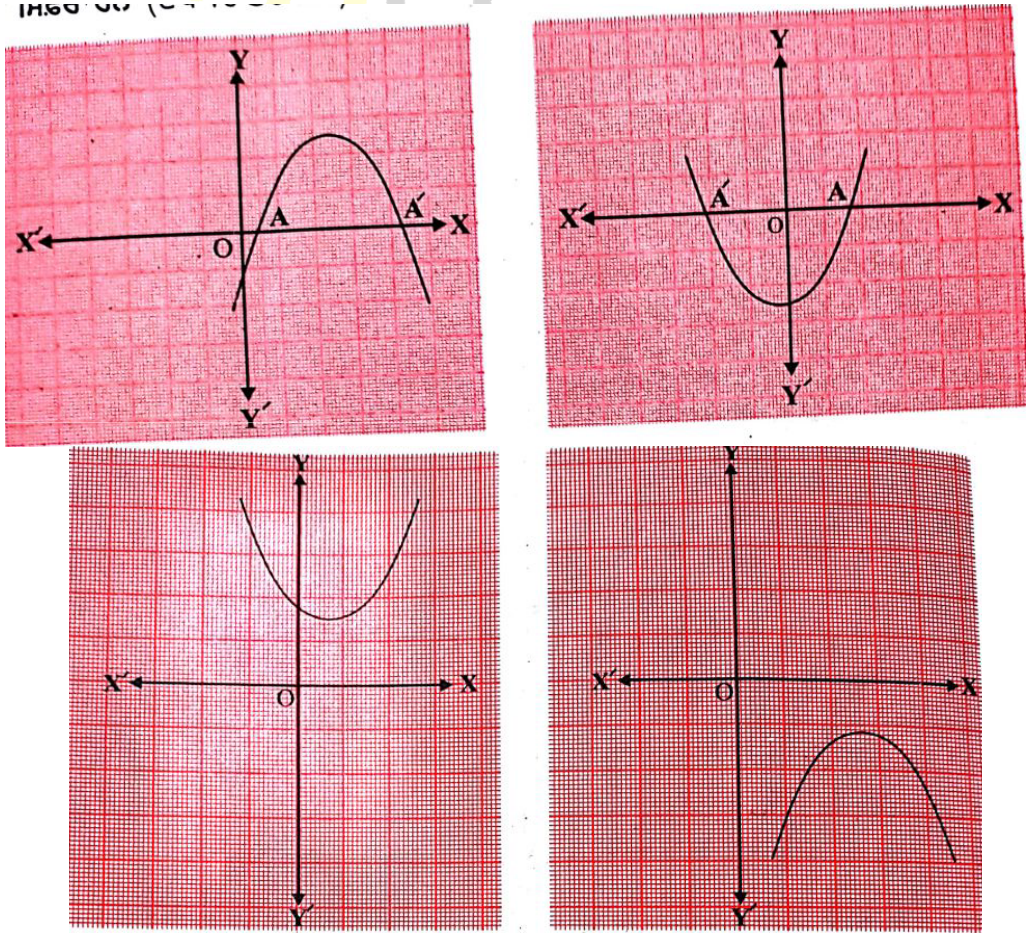
In 9th class, we've discussed about polynomials, its types according to terms and degree. In 10th class we will discuss about degree of polynomials in detail.

Degree of Polynomial:-

Degree of polynomial is the highest power of variable in a polynomial e.g. $5x^6 - 3x^2 + 6x - 1$ has degree 6 & Degree of $4x^3y^4 - 3x^2y^3 + 6xy$ is 7.
(Maximum Sum of exponents of variable in a term)

Polynomials according to Degree

- A polynomial of degree one in one variable is called ***linear polynomial*** $e.g. 3x + 2, 4x, 2x + 1\ etc.$ ***The general term is*** $\boldsymbol{ax + b, a \neq 0}$ ***Geometrically it is represented by straight line.***
- A polynomial of degree two, in one variable is called ***quadratic Polynomial*** $e.g. 3x^2 + 5x + c, 2x^2 + 5\ etc.$***its general form is*** $\boldsymbol{ax^2 + bx + c}$ ***;*** $\boldsymbol{a, b, c}$ ***are real numbers*** $a \neq 0$***. Geometrically it is represented by Parabola (If*** $\boldsymbol{a > 0}$ ***then upward parabola and if*** $\boldsymbol{a < 0}$ ***then its downward parabola).***



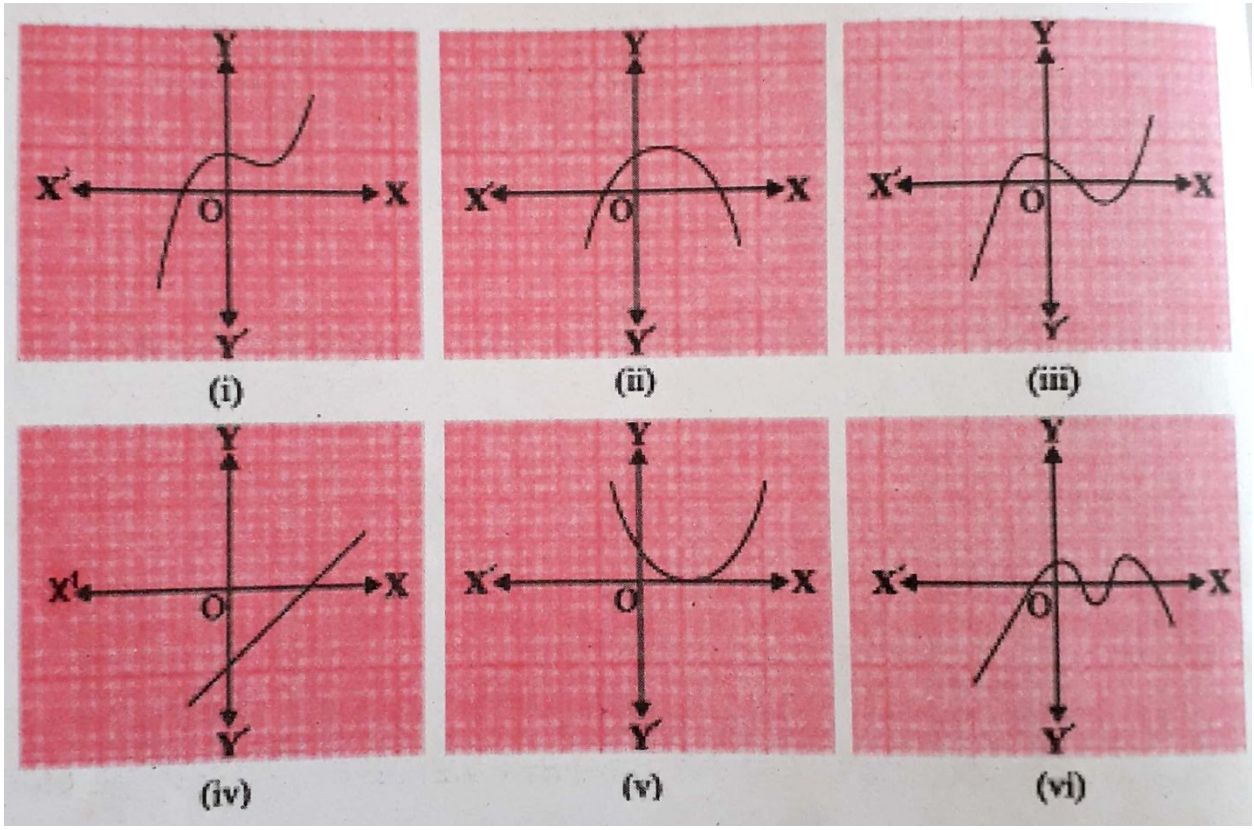
Zeroes of a polynomial

That value of x, for which polynomial is equal to zero called zero of a polynomial. In graph, the number of points which intersect x-axis are zeroes of polynomial.

- Quadratic polynomial has maximum two zeroes.
- Cubic polynomial has maximum three zeroes.
- A polynomial of degree n has atmost n zeroes.

Lets discuss some examples:

1. **Look at the graph. Each is the graph of $y = p(x)$, where $p(x)$ is a polynomial. For each of the graph, find the number of zeroes of $p(x)$**



Sol:- (i) here graph intersect x-axis at one point.

$\therefore$ number of zeroes is 1

(ii) here graph intersect x-axis at two points.

$\therefore$ number of zeroes is 2.

(iii) here graph intersect x-axis at three points.

$\therefore$ number of zeroes is 3

(iv) here graph intersect x-axis at one point.

$\therefore$ number of zeroes is 1.

(v) here graph intersect x-axis at one point.

$\therefore$ number of zeroes is 1

(vi) here graph intersect x-axis at four points.

$\therefore$ number of zeroes is 4.

EXERCISE

1. Exercise 2.1