



## Std. X Algebra

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### 1. Arithmetic Progression :

- Introduction to Sequence
- Arithmetic Progression (A.P.) and Geometric Progression (G.P.)
- General term of an A.P. and G.P.
- Sum of the first 'n' terms of an A.P. and G.P.
- Arithmetic Mean and Geometric Mean.

### 2. Quadratic Equations

- Introduction to quadratic equations
- Solutions of quadratic equations
- Nature of roots based on discriminant
- Relation between roots of the equation and coefficient of the terms in the equation Equations reducible to quadratic form

### 3. Linear equations in two variables

- System of linear equations in two variables
- Algebraic methods of solving linear equations in two variables
- Graphical representation of different possibilities of solutions/Inconsistency
- Graphical method of solving a system of linear equations
- Determinant of order two

- Cramer's rule
- Consistency of pair of linear equations

### 4. Probability :

- Introduction to probability and related terms
- Classical definition of probability
- Types of events
- Equally likely outcomes
- Probability of an event
- Properties of Probability
- Addition theorem (without proof)

### 5. Statistics :

- Brief revision of Tabulation of data, inclusive and exclusive type of tables
- Mean, median and mode of grouped data
- Histograms, frequency polygon, frequency curve, pie diagram
- Ogives (Cumulative frequency graphs)
- Applications of ogives in determination of median
- Relation between measures of central tendency
- Introduction to normal distribution
- Properties of normal distribution





# Geometry

## 1. Similarity :

- Properties of ratios of areas of two triangles
- Basic proportionality theorem
- Introduction to similarity
- Similar triangles
- Areas of two similar triangles
- Similarity in right angled triangles
- Pythagoras theorem and its converse
- 30o-60o-90o theorem and 45 o-45 o-90 o theorem
- Application of Pythagoras theorem in acute and obtuse angle.
- Appolonius theorem

## 2. Circle :

- Tangents and its properties
- Theorem - Tangent at any point to the circle is perpendicular to the radius and its converse
- Number of tangents from a point to a circle
- Theorem- The length of two tangent segments drawn from a point outside the circle are equal
- Touching circles
- Introduction to an arc
- Angle subtended by the arc to the centre and to the point on the circle
- Cyclic quadrilateral
- Tangent - Secant theorem

## 3. Co-ordinate Geometry :

- Slope of a line
- Intercepts made by a line
- Standard forms of equation of a line
- General equation of a line.

## 4. Geometric Constructions :

- Division of line segment in a given ratio
- Basic geometric constructions

- Construction of tangent to the circle from the point on the circle and out side the circle.
- Construction of tangent without using centre
- Construction of triangle If the base, angle apposite to it and either median altitude is given
- Construction of a triangle similar to a given triangle

## 5. Trigonometry :

- Angles in standard position.
- Trigonometric ratios in terms of coordinates of point
- Trigonometric Identities (with proof)
- Use of basic identities and their applications
- Problems on height and distance

## 6. Menstruation :

- Length of an arc
- Area of the sector
- Area of a Circular Segment
- Euler's formula
- Surface area and volume of cuboids Spheres, hemispheres, right circular cylinders cones, frustum of a cone.
- Problems based on areas and perimeter/circumference of circle, sector and segment of a circle.
- Problems on finding surface areas and volumes of combinations of any two of the following : cuboids, spheres, hemispheres and right circular cylinders/ cones
- Problems involving converting one type of metallic solid into another.

