

MATHEMATICS – CLASS 10 (TELANGANA SSC)

✦✦ 1. REAL NUMBERS

- Euclid's Division Algorithm
- Fundamental Theorem of Arithmetic
- Rational & Irrational Numbers
- HCF and LCM using prime factorization

✦ **Key Point:** Every composite number can be expressed as product of primes.

✦✦ 2. SETS

- Types of sets (finite, infinite, empty set)
- Union and Intersection
- Venn Diagrams
- Basic operations on sets

✦ **Key Point:** $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

✦✦ 3. PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

- Graphical method
- Substitution method
- Elimination method
- Word problems

✦ **Key Point:** A solution is a point where both lines intersect.

✦✦ 4. QUADRATIC EQUATIONS

- Standard form $ax^2 + bx + c = 0$
- Factorization method
- Formula method
- Nature of roots

★ **Key Formula:**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

✦✦ 5. PROGRESSIONS (AP)

- nth term: $a_n = a + (n - 1)d$
- Sum of n terms: $S_n = n/2 [2a + (n - 1)d]$

★ **Key Point:** Difference between terms is constant.

✦✦ 6. TRIANGLES

- Similarity of triangles
- Basic proportionality theorem
- Pythagoras theorem

★ **Key Point:** If two triangles are similar, their corresponding sides are proportional.

✦✦ 7. COORDINATE GEOMETRY

- Distance formula
- Midpoint formula
- Section formula

★ **Distance Formula:**

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

✦✦ 8. TRIGONOMETRY

- sin, cos, tan ratios
- Trigonometric identities
- Applications of trigonometry

★ **Identity:**

$$\sin^2\theta + \cos^2\theta = 1$$

✦✦ 9. CIRCLES

- Tangent properties
- Chords and arcs
- Angle subtended by a chord

✦ **Key Point:** Tangent is perpendicular to radius at point of contact.

✦✦ 10. SURFACE AREAS & VOLUMES

- Cylinder, cone, sphere
- Combination of solids

✦ **Formula Example:**

Volume of sphere = $\frac{4}{3} \pi r^3$

✦✦ 11. STATISTICS

- Mean, median, mode
- Graphical representation

✦ **Key Point:** Mean = sum of observations / number of observations

✦✦ 12. PROBABILITY

- Basic probability formula
 $P(E) = \text{Favorable outcomes} / \text{Total outcomes}$

✦ **Key Point:** Probability value lies between 0 and 1

✦ EXAM TIPS

- Practice formulas daily
- Solve previous question papers
- Draw diagrams neatly
- Show steps in exams for full marks

