



# Sri Chaitanya School Techno Curriculum



The right mentor for IIT (JEE), Medical, Olympiad & all other Competitive exams

---

## QUICK REVISION GUIDELINES FOR SSC 2018 STUDENTS

### PAPER-1 & 2

1. Practice Graphs/ Constructions/ O-gives.
2. Phase-1, 2 & 3 fun worksheet bits.
3. Synopsis (formulae, definitions etc.) of each topic.
4. Cover priority -1, 2 & 3 in order.
5. Discuss phase-3 session papers sets - B, C & D problems and bits.
6. Complete textbook Example, Try this do this & Think and discuss problems
7. Discuss paper presentation
8. Give the instructions for slow learners to attempt all the questions
9. Give the instructions for remaining students to answer all the questions
10. For slow learners

Try to complete standard questions in the following order

- a) Graphs/ Constructions/ O-give curve.
- b) Fast track material
- c) Real numbers, sets, polynomials
- f) Linear equations (consistency, inconsistency, special case problems)
- g) Quadratic equations (nature of roots, completing square method)
- h) Progressions (in AP,  $S_n$  and  $a_n$  & in GP,  $a_n$ )
- i) Coordinate geometry (Distance, Section, Area and Slope Formulae)
- j) Mensuration (Formulae)
- k) Probability, Statistics, Trigonometry & Applications (Ex- 11.4)
- l) Similar Triangles (Applications of Theorems)
- m) Tangents and Secants to a Circle (Area Related problems)

**NOTE : DISCUSS SUMMATIVE QUESTION PAPERS.**

**Some of the Standard Problems are mentioned below, try to practice these model sums.**

## QUICK REVIEW QUESTIONS

### Real Numbers

1. Prove that i)  $\sqrt{2}$  ii)  $\sqrt{3}$  iii)  $\frac{2\sqrt{3}}{5}$  iv)  $3+2\sqrt{5}$  v)  $4-5\sqrt{5}$  are irrational numbers.

### Sets

1. If  $A = \{x : x \in \mathbb{N}\}$ ,  $B = \{x : x \text{ is an even natural number}\}$ ,  $C = \{x : x \text{ is an odd natural number}\}$ ,  $D = \{x : x \text{ is a prime number}\}$ , then find : i)  $A \cap B$ , ii)  $A \cup C$ , iii)  $B - C$  iv) , v)  $A - B$ .

### Polynomials

1. Find all the other zeroes of the polynomial  $P(x) = 2x^4 - 7x^3 + 19x^2 - 14x + 30$  if two of zeroes are  $\sqrt{2}$  and  $-\sqrt{2}$ .

### Linear Equations in two Variables

1. Draw the graphs of the equations  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$ . Determine the coordinates of the vertices of the triangle formed by these lines and the X - axis and shade the triangular region.

### Quadratic Equations

1. Find the roots of the following quadratic equations :

i)  $3x^2 - 5x + 2 = 0$       ii)  $x^2 + 4x + 5 = 0$       iii)  $2x^2 - 2\sqrt{2}x + 1 = 0$       iv)  $x^2 + x - 156 = 0$

2. Find two numbers whose sum is 12 and the sum of their reciprocals is  $\frac{3}{8}$ .

3. Find two consecutive positive integers, sum of whose squares is 365.

4. Solve the quadratic equations : i)  $\frac{1}{x+1} + \frac{2}{x+2} = \frac{4}{x+4}$  ; ii)  $\frac{3x-4}{7} + \frac{7}{3x-4} = \frac{5}{2}$

5. If the roots of i)  $2x^2 + kx + 3 = 0$  ii)  $(k-12)x^2 + 2(k-12)x + 2 = 0$  are equal then find the value of k.

### Progressions

- The first term of an A.P is  $-7$  and the common difference  $5$ , find its  $18^{\text{th}}$  term and general term.
- Which term of the A.P :  $21, 18, 15, \dots$  is  $-81$ ? Also, is any term  $0$ ? Give reason for your answer.
- Which term of the A.P :  $3, 15, 27, 39, \dots$  will be  $132$  more than its  $54^{\text{th}}$  term?
- How many multiples of  $4$  lie between  $10$  and  $250$ ?
- Find the sum of first  $22$  terms of an A. P in which  $d = 7$  and  $22^{\text{nd}}$  term is  $149$ .
- How many terms of the A.P :  $9, 17, 25, \dots$  must be taken to give a sum of  $636$ ?
- The sum of  $5^{\text{th}}$  term and  $9^{\text{th}}$  term of an A.P is  $72$  and the sum of  $7^{\text{th}}$  and  $12^{\text{th}}$  terms is  $97$ . Find the A.P.
- If sum of  $n$  terms of an A.P is  $2n^2 + 5$ , then prove that  $a_n = 4n + 3$ .

### Coordinate Geometry

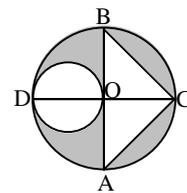
1. Show that the points (1, 7), (4, 2), (-1, -1) and (-4, 4) are the vertices of a square.
2. Find the point on the X - axis which is equidistant from (2, -5) and (-2, 9).
3. Find the coordinates of the points of trisection of the line segment joining (4, -1) and (-2, -3).
4. If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram taken in order, find x and y.
5. Find the area of the quadrilateral whose vertices, taken in order, are (-4, -2), (-3, -5), (3, -2) and (2, 3).
6. For what value of p are the points (2, 1), (p, -1) and (-1, 3) collinear?
7. Find the area of the triangle formed by joining the mid - points of the sides of the triangle whose vertices are (0, -1), (2, 1) and (0, 3). Find the ratio of this area to the area of the given triangle.

### Similar Triangles

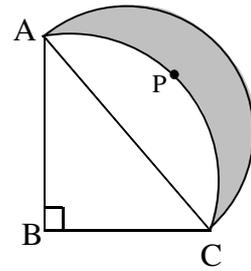
1. State and prove Basic Proportionality Theorem.
2. State and prove Pythagoras Theorem.
3. Construct a triangle of sides 4cm, 5cm and 6cm and then a triangle similar to it whose sides are  $\frac{2}{3}$  of the corresponding sides of the first triangle.
4. Construct an isosceles triangle whose base is 8cm and altitude 4cm and then another triangle whose sides are  $1\frac{1}{2}$  times the corresponding sides of the isosceles triangle.
5. Draw a triangle ABC with side BC = 6cm, AB = 5cm and  $\angle ABC = 60^\circ$ . Then construct a triangle whose sides are  $\frac{3}{4}$  of the corresponding sides of the triangle ABC.

### Tangents and Secants to a Circle

1. Prove that a tangent at any point on the circle is perpendicular to the radius through the point of contact.
2. Prove that the lengths of the tangents from an external point to a circle are equal.
3. Construct a tangent to a circle of radius 4cm from a point on the concentric circle of radius 6 cm and measure its length. Also verify the measurement by actual calculation.
4. Draw a circle of radius 3cm. Take two points P and Q on one of its extended diameter each at a distance of 7cm from its centre. Draw tangents to the circle from these two points P and Q.
5. In the adjoining figure, AB is a diameter of the circle with centre O and OA = 7cm. Find the area of the shaded region.



6. ABCP is a quadrant of a circle of radius 14cm. With AC as diameter a semicircle is drawn. Find the area of the shaded region.



### Mensuration

1. A container, shaped like a right circular cylinder, having diameter 12cm and height 15cm is full of ice-cream. This ice-cream is to be filled into cones of height 12cm and diameter 6cm having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.
2. A wooden article was made by scooping out a hemisphere from each end of a solid cylinder. If the height of the cylinder is 20cm and radius of the base is 3.5cm. Find the total surface area of the article.
3. A container open at the top, is in the form of frustum of a cone of height 24cm with radii of its lower and circular ends as 8cm and 20cm respectively. Find the cost of milk which can completely fill the container at the rate of ₹.21 per litre.

### Trigonometry

1. If  $\sin 3A = \cos (A - 26)$ , where  $3A$  is an acute angle. Find the value of  $A$ .
2. Without using trigonometric tables, evaluate-

$$\frac{\cos^2 20^\circ + \cos^2 70^\circ}{\sec^2 50^\circ - \cot^2 40^\circ} \times 2 \sec 26^\circ - 2 \cot 58^\circ \cot 32^\circ - 4 \tan 13^\circ \tan 37^\circ \tan 45^\circ \tan 53^\circ \tan 77^\circ.$$

### Applications of Trigonometry

1. The angle of elevation of an aeroplane from a point on the ground is  $45^\circ$ . After flight for 15 seconds the elevation changes to  $30^\circ$ . If the aeroplane is flying at a height of 3000m. Find the speed of the aeroplane.
2. The angle of elevation of the top of a hill from foot of a tower is  $60^\circ$  and the angle of elevation of the top of the tower from the foot of the hill is  $30^\circ$ . If tower is 50m high, then find the height of the hill.
3. Two pillars of equal height are on either sides of a road, which is 100m wide. The angles of the top of the pillars are  $60^\circ$  and  $30^\circ$  at a point on the road between the pillars. Find the position of the point between the pillars. Also, find the height of each pillar.

### Statistics

1. If the mean of the following distribution by a suitable method.

<b>Class Interval</b>	50 - 70	70 - 90	90 - 110	110 - 130	130 - 150	150 - 170
<b>Frequency</b>	8	12	13	27	18	22

2. Find the mode of the following data :

<b>Class Interval</b>	25 - 35	35 - 45	45 - 55	55 - 65	65 - 75	75 - 85
<b>Frequency</b>	7	31	33	17	11	1

3. The following tables gives production yield per hectare of wheat of 100 farmers of a village. Change the distribution to a more than type distribution and draw it's O give.

<b>Production yeild (Qui / Hec)</b>	50-55	55-60	60-65	65-70	70-75	75-80
<b>Number of Farmers</b>	2	8	12	24	38	16

4. The following distribution gives the daily income of 50 workers in a factory. Convert the distribution to a less than type cumulative frequency distribution and draw it's O give.

<b>Daily income (in Rupees)</b>	100 - 120	120 - 140	140 - 160	160 - 180	180 - 200
<b>Number of Workers</b>	12	14	8	6	10

### Probability

- One card is selected from a well - shuffled deck of 52 cards. Find the probability of getting
 

i) a king of red colour	ii) a face card	iii) a red face card
iv) the jack of hearts	v) a spade	vi) the queen of diamonds
vii) a honorable card	viii) a black queen	ix) a non - face card
x) a black king or a red queen	xi) neither an ace nor a king	
- A black die and a white die are thrown at the same time. Write all the possible out comes.
  - What is the probability that the sum of the two numbers that turn up is 8?
  - Find the probability of obtaining
 

(i) a total of 6	(ii) a total of 10	(iii) The same number on both dice
------------------	--------------------	------------------------------------
- Cards marked with numbers 1, 2, 3, ..... 25 are placed in a box and mixed thoroughly and one card is drawn at random from the box what is the probability that the number on the card is
 

(i) a prime number?	(ii) a multiple of 3 or 5?	(iii) an odd number?
(iv) neither divisible by 5 nor by 10?	(v) perfect square	(vi) a two digit number.
- A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be
 

(i) red?	(ii) white?	(iii) not green?	(iv) not red?	(v) either red or green.
----------	-------------	------------------	---------------	--------------------------

**Note :**

#### **HONOR CARDS AND SPOTS CARDS:**

- The Ace, King, Queen and Jack of each suit are called HONOR CARDS
- The rest of the cards are called SPOT CARDS: like 2, 3, 4, 5, 6, 7, 8, 9, 10

#### **RANKING OF CARDS :**

- The Ace is the highest RANKING card in each suit.
- The King is the next highest RANKING card
- The Queen is the third highest RANKING card
- The Jack is the fourth highest RANKING card

#### **RANKING OF SUITS :**

- Spades are the highest RANKING suit
- Hearts are the 2nd highest RANKING suit
- Diamonds are the 3rd highest RANKING suit
- Clubs are the lowest RANKING suit

#### **MAJOR AND MINOR SUITS :**

- Spades and Hearts are called the MAJOR suits
- Diamonds and Clubs are called the MINOR suits

