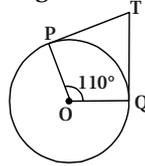




A Write the answer of the following questions. [Each carries 1 Mark] [21]

- Two players, Sangeeta and Reshma, play a tennis match. It is known that the probability of Sangeeta winning the match is 0.62. What is the probability of Reshma winning the match ?
- In Figure, if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110^\circ$, then $\angle PTQ$ is equal to

(A) 60° (B) 70° (C) 80° (D) 90°



- A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is :

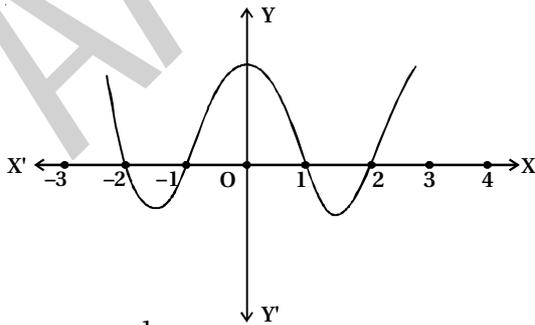
(A) 12 cm (B) 13 cm (C) 8.5 cm (D) $\sqrt{119}$ cm

- $9 \sec^2 A - 9 \tan^2 A = \dots\dots\dots$
(A) 1 (B) 9 (C) 8 (D) 0
- E and F are points on the sides PQ and PR respectively of a ΔPQR . For each of the following cases, state whether $EF \parallel QR$: PQ = 1.28 cm, PR = 2.56 cm, PE = 0.18 cm and PF = 0.36 cm
- Check whether the following are quadratic equation : $(x - 2)^2 + 1 = 2x - 3$
- Find the nature of the roots of the following quadratic equations. If the real roots exist, find them : $2x^2 - 3x + 5 = 0$
- If discriminant of $2x^2 + 5x - k = 0$ is 81 then $k = \dots\dots\dots$
(A) 5 (B) 7 (C) -7 (D) -5
- Mode - Median = $\dots\dots\dots \times$ (Median - Mean) (2, 3, 4)
- If $13x + 19y = 90$ and $19x + 13y = 70$ then $x + y = \dots\dots\dots$
(A) 4 (B) 5 (C) 6 (D) 7

- If $\cos A = \frac{4}{5}$, $\tan A = \dots\dots\dots$. $\left(\frac{3}{5}, \frac{3}{4}, \frac{4}{3}\right)$

- The number of zeroes for the given polynomial between 0 and 4 is $\dots\dots\dots$.

- (A) 3
(B) 6
(C) 2
(D) 4



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- True or False : Mona has probability $\frac{1}{80}$ of getting 80 marks out of 80 in Maths question paper.
- Given that $HCF(306, 657) = 9$, find $LCM(306, 657)$.
- True or False : If $b^2 - 4ac > 0$, then quadratic equation has no real solution.
- Which one is true for the linear pair of equations graph when we have two intersecting lines and unique solution ? (A) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (B) $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ (C) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (D) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$
- If $a = 5$, $d = 8$ then $S_{20} = \dots\dots\dots$
(A) 2160 (B) 2060 (C) 810 (D) 1620
- In ΔABC and ΔMNO , $\angle M = \angle A$, $\angle O = \angle B$ then $\Delta MNO \sim \dots\dots\dots$ is similarity.
(A) ΔABC (B) ΔACB (C) ΔCBA (D) ΔBCA
- Distance between the points (0, 5) and (-5, 0) is $\dots\dots\dots$ ($5\sqrt{5}$, 5, $5\sqrt{2}$)
- Number of tangents that can be drawn from point on a circle. (one, two, three)

21. Total surface area of a ₹ 10 coin is ($3\pi r(h + r)$, $\pi r(h + r)$, $2\pi r(h + r)$)

Write the answer of the following questions. [Each carries 2 Mark] [72]

22. A lot consists of 144 ball pens of which 20 are defective and the others are good. Nuri will buy a pen if it is good, but will not buy if it is defective. The shopkeeper draws one pen at random and gives it to her. What is the probability that (i) She will buy it ? (ii) She will not buy it ?

23. Find the median of the following data which gives the marks, out of 50, obtained by 100 students in a test (Ungrouped data)

Marks obtained	20	29	28	33	42	38	43	25
Number of students	6	28	24	15	2	4	1	20

24. Rasheed got a playing top (*lattu*) as his birthday present, which surprisingly had no colour on it. He wanted to colour it with his crayons. The top is shaped like a cone surmounted by a hemisphere (see Fig). The entire top is 5 cm in height and the diameter of the top is 3.5 cm. Find the area he has to colour. (Take $\pi = \frac{22}{7}$)

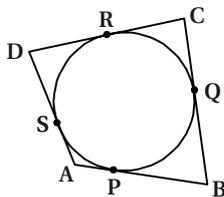
25. A vessel is in the form of a hollow hemisphere mounted by a hollow cylinder. The diameter of the hemisphere is 14 cm and the total height of the vessel is 13 cm. Find the inner surface area of the vessel. (take $\pi = \frac{22}{7}$)

26. Find the area of the sector of a circle with radius 4 cm and of angle 30° . Also, find the area of the corresponding major sector (Use $\pi = 3.14$).

27. A car has two wipers which do not overlap. Each wiper has a blade of length 25 cm sweeping through an angle of 115° . Find the total area cleaned at each sweep of the blades. use $\pi = \frac{22}{7}$

28. A horse is tied to a peg at one corner of a square shaped grass field of side 15 m by means of a 5 m long rope . Find the increase in the grazing area if the rope were 10 m long instead of 5 m. (Use $\pi = 3.14$)

29. A quadrilateral ABCD is drawn to circumscribe a circle (see Figure). Prove that $AB + CD = AD + BC$



30. Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre.

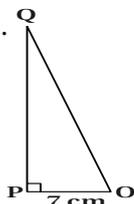
31. From the top of a 7 m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45° . Determine the height of the tower.

32. A statue, 1.6 m tall, stands on the top of a pedestal. From a point on the ground, the angle of elevation of the top of the statue is 60° and from the same point the angle of elevation of the top of the pedestal is 45° . Find the height of the pedestal.

33. A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60° . Find the length of the string, assuming that there is no slack in the string.

34. A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle 30° with it. The distance between the foot of the tree to the point where the top touches the ground is 8 m. Find the height of the tree.

35. In ΔOPQ , right-angled at P, $OP = 7$ cm and $OQ - PQ = 1$ cm (see Fig.). Determine the values of $\sin Q$ and $\cos Q$.



36. Given $\sec \theta = \frac{13}{12}$ calculate all other trigonometric ratios.



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37. Evaluate the following : $\frac{\cos 45^\circ}{\sec 30^\circ + \operatorname{cosec} 30^\circ}$
38. If the points A(6, 1), B(8, 2), C(9, 4) and D(p, 3) are the vertices of a parallelogram, taken in order, find the value of p.
39. In what ratio does the point (-4, 6) divide the line segment joining the points A(-6, 10) and B(3, -8) ?
40. Show that the points (1, 7), (4, 2), (-1, -1) and (-4, 4) are the vertices of a square.
41. Find the values of y for which the distance between the points P(2, -3) and Q(10, y) is 10 units.
42. If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram taken in order, find x and y.
43. Find the sum of the first 22 terms of the AP : 8, 3, -2, . . .
44. Which term of the AP : 3, 8, 13, 18,, is 78 ?
45. In an AP : Given $a_{12} = 37$, $d = 3$ find a and S_{12} .
46. Find two numbers whose sum is 27 and product is 182.
47. Find the root of the following quadratic equation by factorisation : $100x^2 - 20x + 1 = 0$
48. Solve the following pair of equations by substitution method : $7x - 15y = 2$, $x + 2y = 3$
49. On comparing the ratios $\frac{1}{a_2}$, $\frac{1}{b_2}$ and $\frac{1}{c_2}$, find out whether the following pair of linear equation are consistent, or inconsistent. $\frac{3}{2}x + \frac{5}{3}y = 7$; $9x - 10y = 14$
50. Solve $2x + 3y = 11$ and $2x - 4y = -24$ and hence find the value of 'm' for which $y = mx + 3$.
51. Solve the following pair of linear equations by the elimination method and the substitution method : $3x - 5y - 4 = 0$ and $9x = 2y + 7$
52. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively : $-\frac{1}{4}, \frac{1}{4}$
53. Find the zeroes of the following quadratic polynomial and verify the relationship between the zeroes and the coefficients : $3x^2 - x - 4$
54. Show that $3\sqrt{2}$ is irrational.
55. Show that $5 - \sqrt{3}$ is irrational.
56. Prove that tangents drawn at the end points of a diameter are parallel to each other.
57. If $\tan \theta = \frac{4}{3}$ then $\frac{1 - \sin \theta}{1 + \sin \theta} = \dots\dots \left(\frac{1}{9}, 9, \frac{3}{5}\right)$

C Write the answer of the following questions. [Each carries 3 Marks] [18]

58. A carton consists of 100 shirts of which 88 are good, 8 have minor defects and 4 have major defects. Jimmy, a trader, will only accept the shirts which are good, but Sujatha, another trader, will only reject the shirts which have major defects. One shirt is drawn at random from the carton. What is the probability that (i) it is acceptable to Jimmy ? (ii) it is acceptable to Sujatha ?
59. A student noted the number of cars passing through a spot on a road for 100 periods each of 3 minutes and summarised it in the table given below. Find the mode of the data :

Number of cars	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
Frequency	7	14	13	12	20	11	15	8

60. The following table gives the distribution of the life time of 400 neon lamps :

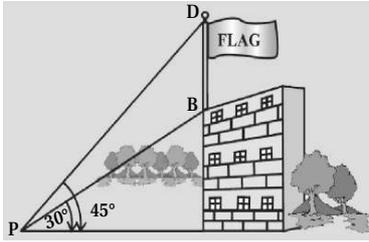
Life time (in hours)	Number of lamps
1500 - 2000	14
2000 - 2500	56
2500 - 3000	60
3000 - 3500	86
3500 - 4000	74
4000 - 4500	62
4500 - 5000	48

Find the median life time of a lamp.



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61. A gulab jamun, contains sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 gulab jamuns, each shaped like a cylinder with two hemispherical ends with length 5 cm and diameter 2.8 cm (see Figure). (take $\pi = \frac{22}{7}$)
62. From a point P on the ground the angle of elevation of the top of a 10 m tall building is 30° . A flag is hoisted at the top of the building and the angle of elevation of the top of the flagstaff from P is 45° . Find the length of the flagstaff and the distance of the building from the point P. (You may take $\sqrt{3} = 1.732$)



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63. Prove that $\sqrt{3}$ is irrational.

D Write the answer of the following questions. [Each carries 4 Marks]

64. The median of the following data is 525. Find the values of x and y , if the total frequency is 100.

Class interval	Frequency (f_i)
0 – 100	2
100 – 200	5
200 – 300	x
300 – 400	12
400 – 500	17
500 – 600	20
600 – 700	y
700 – 800	9
800 – 900	7
900 – 1000	4

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New Batches at AAYTAN for Academic Year 2026-27 Start Dates

STANDARD	COMMENCING DATES
11 th PCMB	19 th March 2026
12 th PCMB	12 th March 2026
8 th CBSE	02 nd April 2026
9 th / 10 th CBSE	26 th March 2026
8 th / 9 th / 10 th GSEB	23 rd April 2026

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