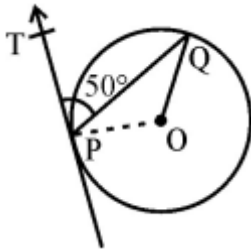


1. HCF of two numbers is 27 and their LCM is 162. If one of the numbers is 54, then the other number is:
 - a. 36
 - b. 35
 - c. 9
 - d. 81
2. The cumulative frequency table is useful in determining
 - a. Mean
 - b. Median
 - c. Mode
 - d. All of these
3. In the figure, O is the centre of the circle. PQ is a chord and PT is tangent at P which makes an angle of 50° with PQ. $\angle POQ$ is:



- a. 130°
 - b. 90°
 - c. 100°
 - d. 75°
4. $23 - \sqrt{23}$ is
 - a. an integer
 - b. a rational number
 - c. an irrational number
 - d. a whole number
5. Two coins are tossed simultaneously. The probability of getting at most one head is:
 - a. $\frac{1}{4}$
 - b. $\frac{1}{2}$
 - c. $\frac{3}{4}$
 - d. $\frac{3}{8}$

6. If one zero of the polynomial $(3x^2 + 8x + k)$ is the reciprocal of the other, then the value of k is:
- 3
 - 3
 - 1313
 - $-13-13$
7. The decimal expansion of 2325×52 will terminate after how many places of decimal?
- 2
 - 4
 - 5
 - 1
8. The maximum number of zeroes a cubic polynomial can have, is:
- 1
 - 4
 - 2
 - 3
9. The distance of the point $(-12, 5)$ from the origin is:
- 12
 - 5
 - 13
 - 169
10. If the centre of a circle is $(3, 5)$ and endpoints of a diameter are $(4, 7)$ and $(2, y)$, then the value of y is
- 3
 - 3
 - 7
 - 4

Question numbers 11 to 15, fill in the blanks :

11. The area of the triangle formed with the origin and the points $(4, 0)$ and $(0, 6)$ is _____.

OR

The co-ordinate of the point dividing the line segment joining the points A(1, 3) and B(4, 6) in the ratio 2 : 1 is _____.

12. Value of the roots of the quadratic equation, $x^2 - x - 6 = 0$ are _____.
13. If $\sin\theta = \frac{5}{13}$, then the value of $\tan\theta$ is _____.
14. The value of $(\tan 260^\circ + \sin 245^\circ)$ is _____.
15. The corresponding sides of two similar triangles are in the ratio 3 : 4, then the ratios of the area of triangles is _____.

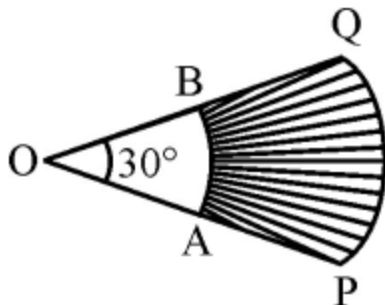
Question numbers 16 to 20, answer the following:

16. Find the value of $(\cos 48^\circ - \sin 42^\circ)$

OR

Evaluate : $(\tan 23^\circ) \times (\tan 67^\circ)$

17. In figure \widehat{PQ} and \widehat{AB} are two arcs of concentric circles of radii 7 cm and 3.5 cm resp., with centre O. If $\angle POQ = 30^\circ$, then find the area of shaded region.



18. A card is drawn at random from a well shuffled deck of 52 playing cards. What is the probability of getting a black king?
19. A ladder 25 m long just reaches the top of a building 24 m high from the ground. What is the distance of the foot of ladder from the base of the building?
20. If $3k - 2$, $4k - 6$ and $k + 2$ are three consecutive terms of A.P., then find the value of k.

Section – B

Question numbers 21 to 26 carry 2 marks each.

21. In a lottery, there are 10 prizes and 25 blanks. What is the probability of getting a prize?
22. In a family of three children, find the probability of having at least two boys.

OR

Two dice are tossed simultaneously. Find the probability of getting

- i. an even number on both dice.
 - ii. the sum of two numbers more than 9
23. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.
 24. Prove that: $\frac{1+\sin\theta}{1-\sin\theta} + \frac{1-\sin\theta}{1+\sin\theta} = 2 \sec^2\theta$

OR

Prove that: $\frac{1-\tan^2\theta}{1+\tan^2\theta} = \cos^2\theta - \sin^2\theta$

25. The wheel of a motorcycle is of radius 35 cm. How many revolutions are required to travel a distance of 11 m?
26. Divide $(2x^2 - x + 3)$ by $(2 - x)$ and write the quotient and the remainder.

Section - C

Question numbers 27 to 34 carry 3 marks each.

27. If α and β are the zeroes of the polynomial $f(x) = 5x^2 - 7x + 1$, then find the value of $(\alpha\beta + \beta\alpha)(\alpha\beta + \beta\alpha)$.
28. Draw a line segment of length 7 cm and divide it in the ratio 2 : 3.

OR

Draw a circle of radius 4 cm and construct the pair of tangents to the circle from an external point, which is at a distance of 7 cm from its centre.

29. The minute hand of a clock is 21 cm long. Calculate the area swept by it and the distance travelled by its tip in 20 minutes.
30. If $x = 3 \sin\theta + 4 \cos\theta$ and $y = 3 \cos\theta - 4 \sin\theta$ then prove that $x^2 + y^2 = 25$.

OR

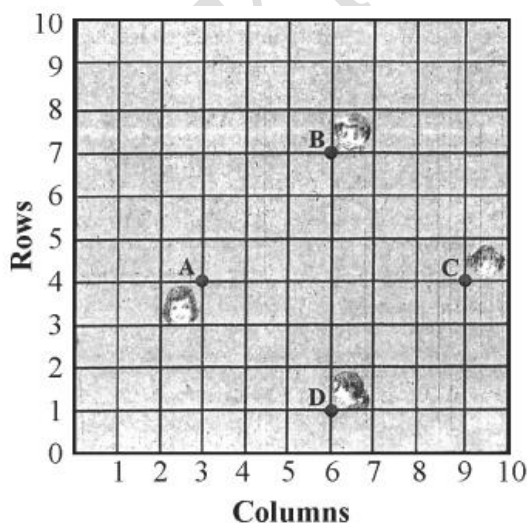
If $\sin\theta + \sin^2\theta = 1$; then prove that $\cos^2\theta + \cos^4\theta = 1$.

31. Prove that $3 - \sqrt{3}$ is an irrational number.

OR

Using Euclid's algorithm, find the HCF of 272 and 1032.

32. In a rectangle ABCD, P is any interior point. Then prove that $PA^2 + PC^2 = PB^2 + PD^2$.
33. In a classroom, 4 friends are seated at the points A, B, C and D as shown in Figure Champa and Chameli walk into the class and after observing for a few minutes Champa asks Chameli, "Don't you think ABCD is a square?" Chameli disagrees. Using distance formula, find which of them is correct.



34. Solve graphically:
 $2x - 3y + 13 = 0$; $3x - 2y + 12 = 0$

Question numbers 35 to 40 carry 4 marks each.

35. The product of two consecutive positive integers is 306. Find the integers.
36. The 17th term of an A.P. is 5 more than twice its 8th term. If 11th term of A.P. is 43; then find its n th term. 4

OR

How many terms of A.P. 3, 5, 7, 9, ... must be taken to get the sum 120?

37. A person standing on the bank of a river observes that the angle of elevation of the top of a tree standing on the opposite bank is 60° . When he moves 30 m away from the bank, he finds the angle of elevation to be 30° . Find the height of the tree and width of the river.
[Take $3 - \sqrt{3} = 1.732$]
38. Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.

OR

Prove that the length of tangents drawn from an external point to a circle are equal.

39. From a solid cylinder whose height is 15 cm and the diameter is 16 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of remaining solid. (Give your answer in terms of π) 4

OR

The height of a cone is 10 cm. The cone is divided into two parts using a plane parallel to its base at the middle of its height. Find the ratio of the volumes of the two parts.

40. The mode of the following frequency distribution is 36. Find the missing frequency (f).

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	10	f	16	12	6	7