

CBSE Mathematics Question Paper

SECTION – C

Question numbers 11 to 20 carry 3 marks each.

11. In fig. 4, O is the centre of a circle such that diameter $AB = 13$ cm and $AC = 12$ cm. BC is joined. Find the area of the shaded region. (Take $\pi = 3.14$)

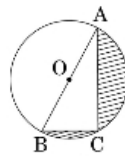


Figure 4

12. In fig. 5, a tent is in the shape of a cylinder surmounted by a conical top of same diameter. If the height and diameter of cylindrical part are 2.1 m and 3 m respectively and the slant height of conical part is 2.8 m, find the cost of canvas needed to make the tent if the canvas is available at the rate of Rs. 500 per sq. metre. (Use $\pi = \frac{22}{7}$)

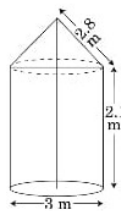
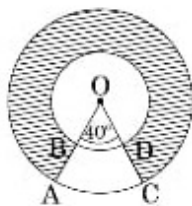


Figure 5

13. If the point $P(x, y)$ is equidistant from the points $A(a + b, b - a)$ and $B(a - b, a + b)$, prove that $bx = ay$.
14. In fig. 6, find the area of the shaded region, enclosed between two concentric circles of radii 7 cm and 14 cm where $\angle AOC = 40^\circ$. (Use $\pi = \frac{22}{7}$)



15. If the ratio of the sum of first n terms of two A.P.'s is $(7n + 1) : (4n + 27)$, find the ratio of their n^{th} terms.
16. Solve for x :
- $$\frac{1}{(x-1)(x-2)} + \frac{1}{(x-2)(x-3)} = \frac{2}{3}, \quad x \neq 1, 2, 3$$
17. A conical vessel, with base radius 5 cm and height 24 cm, is full of water. This water is emptied into a cylindrical vessel of base radius 10 cm. Find the height to which the water will rise in the cylindrical vessel. (Use $\pi = \frac{22}{7}$)
18. A sphere of diameter 12 cm is dropped in a right circular cylindrical vessel partly filled with water. If the sphere is completely submerged, the water level in the cylindrical vessel rises by $3\frac{5}{9}$ cm. Find the diameter of the cylindrical vessel.
19. A man standing on the deck of a ship, which is 10 m above water level, observes the angle of elevation of the top of a hill as 60° and the angle of depression of the base as 30° . Find the distance of the hill from the ship and the height of the hill.
20. Three different coins are tossed together. Find the probability of getting: (i) exactly two heads, (ii) at least two heads, (iii) at least two tails.