

IX Chapter - 13 : Surface areas and Volumes

1. A solid cylinder has a total surface area of 231cm^2 . Its curved surface area is $\frac{2}{3}$ of the total surface area. Find the volume of the cylinder.

Ans: 269.5cm^2

2. The diameter of a garden roller is 1.4m and it is 2m long. How much area will it cover in 5 revolutions?

Ans: 44m^2

3. Three metal cubes whose edge measure 3cm , 4cm and 5cm respectively are melted to form a single cube, find its edge.

Ans: 6cm

4. The dimensions of a cuboid are in the ratio of $1 : 2 : 3$ and its total surface area is 88m^2 . Find the dimensions.

Ans: $2, 4, 6\text{ cm}$

5. Find the lateral curved surface area of a cylindrical petrol storage tank that is 4.2m in diameter and 4.5m high. How much steel was actually used, if $\frac{1}{12}$ of steel actually used was wasted in making the closed tank.

Ans: $59.4\text{m}^2, 95.04\text{m}^2$

6. The radius and height of a cone are in the ratio $4 : 3$. The area of the base is 154cm^2 . Find the area of the curved surface.

Ans: 192.5cm^2

7. A sphere, cylinder and cone are of the same radius and same height. Find the ratio of their curved surfaces.

Ans: $4 : 4 : \sqrt{5}$

8. A hemispherical bowl of internal diameter 36cm contains a liquid. This liquid is to be filled in cylindrical bottles of radius 3cm and height 6cm . How many bottles are required to empty the bowl?

Ans: 72

9. A hemisphere of lead of radius 8cm is cast into a right circular cone of base radius 6cm . Determine the height of the cone.

Ans: 28.44

Q.19. Find the volume of the largest right circular cone that can be fitted in a cube whose edge is 14cm . Ans: 718.66cm^3

10. A well with 10m inside diameter is dug 14m deep. Earth taken out of it is spread all around to a width of 5m to form an embankment. Find the height of embankment.

Ans:4.66m

11. A metallic sheet is of the rectangular shape with dimensions 48cm X 36cm. From each one of its corners, a square of 8cm is cutoff. An open box is made of the remaining sheet. Find the volume of the box.

Ans: 5120cm³

12. Water in a canal, 30dm wide and 12dm deep is flowing with a velocity of 20km per hour. How much area will it irrigate in 30min. if 9cm of standing water is desired? (10dm = 1 meter)

Ans: 4,00,000m²

13. Three cubes of each side 4cm are joining end to end. Find the surface area of resulting cuboid.

Ans: 224 cm²

14. A hollow cylindrical pipe is 210cm long. Its outer and inner diameters are 10cm and 6cm respectively. Find the volume of the copper used in making the pipe.

Ans: 10560cm³

15. A semi circular sheet of metal of diameter 28cm is bent into an open conical cup. Find the depth and capacity of cup.

Ans: 12.12cm, 622.26cm³

16. If the radius of a sphere is doubled, what is the ratio of the volume of the first sphere to that of second sphere?

Ans: 1:8

17. The sum of length, breadth and height of a cuboid is 21 cm and the length of its diagonal is 12 cm. Find the surface area of the cuboid.

Ans: 297 cm²

18. The internal and external diameters of a hollow hemispherical vessel are 20 cm and 28 cm respectively. Find the cost of painting the vessel all over at 15 paisa per cm²

Ans: Rs. 324.34

19. A well of diameter 3m is dug 14 m deep. The earth taken out of it has been spread evenly all around it to a width of 4 m to form an embankment. Find the height of the embankment

Ans: 1.125 m

20. A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm. Find the volume of the solid so obtained? Ans: 314 cm³