Surface Areas and Volumes

<1M>

1.Find the area enclosed between two concentric circles of radii 4 cm and 3 cm.

2.A cuboid has total surface area of 40 sq m and its lateral surface area is 26 sq m. Find the area of base.

3.The area of three adjacent faces of a cuboid are x, y and z. If the volume is V, prove that $V^2 = xyz$

4.A sphere is double height as the cube The ratio of their volume is:

(A) $88:21$ B) $44:21$ C) $8:21$ (D) $88:23$

5.The lateral surface area of a right circular cylinder with base radius 8m & height 14m is:

(A) 714 sq m B) 724 sq m C) 704 sq m D) None

6.The number of surfaces in right circular cylinder is:

(A) 3 B) 2 C) 4 D) 1

7.A sphere and a cube are of the same height. The ratio of their volume is-

(A) 11:21 B) 21:11 C) 3:4 D) 4:3

8.A cylindrical rod whose height is 8 times of its radius, is melted and recast into spherical balls of same radius. The no. of balls will be:

(A) 4 B) 3 C) 6 D) 8

9.The diameter of a copper sphere is 6 cm. It is beaten and drawn into a wire of diameter 0.2 cm. The length of wire is ....

(A) 3600 cm B) 360 cm C) 36 cm D) None

10.The height and radius of a cone are 3 cm and 4 cm respectively. Its surface area is-

(A) 12 cm^2 B) 6 cm^2 C) cm^2 D) $57\frac{3}{4}$ cm^2

11.The ratio of the volume & surface area of a sphere of unit radius is-

(A) 1:3 B) 4:3 C) 3:1 D) 3:4

12.Curved surface area of an ice-cream cone of slant height 12 cm is 113.04 cm^2. Find the base radius? (takeπ = 3.14)

(A) 1 cm B) 2 cm C) 3 cm D) None

13.The height of a right circular cone is 16 cm & its base radius is 12 cm. Find the curved surface area. (takeπ = 3.14)

(A) 755 cm^2 (B) 753.6 cm^2 (C) 750 cm^2 (D) None

14.The radius of the cylinder whose lateral surface area is 704 cm^2 & height is 8 cm is:

(A) 14 cm (B) 4 cm (C) 6 cm (D) 8 cm

15.The radius of a cylinder is doubled but its lateral surface area is unchanged. Then its height must be-

(A) Doubled. (B) Constant. (C) Halved. (D) Trippled.

16.What is the curved surface area of a right circular cone whose slant height is 21 cm & base radius is 10 cm.
(A) 620 cm^2 (B) 660 cm^2 (C) 600 cm^2 (D) 650 cm^2

17.A metallic right circular cone of height 9 cm and base radius 7 cm is melted into a cuboid whose two sides are 11 cm and 6 cm. What is the third side of the cuboid?

18.The lateral surface area of cylinder is 176 cm^2 & base area 38.5cm^2, then its volume is-
(A) 803 cm (B) 308 cm^3 (C) 380 cm^3 (D) 360 cm^3

19.Ratio of volumes of two cones with same radius:
(A) $r_1 : r_2$ (B) $h_1 : h_2$ (C) $h = 2h_2$ (D) None of them.

20.Ratio of lateral surface areas of two cylinders with equal height is:
(A) 1 : 2 (B) R : 2r (C) R : r (D) None

21.Ratio of volumes of two cones with same height is:
(A) $r_1^2 : r_2^2$ (B) $r_1 : r_2$ (C) $h_1^2 : h_2^2$ (D) None

22.The lateral surface area of a right circular cylinder with base radius 7 cm & height 10 cm is:
(A) 404 cm^2 (B) 240 cm^2 (C) 440 cm^2 (D) None

23.Vertical and horizontal cross-sections of a right circular cylinder are always respectively-
(A) Rectangle, square (B) Rectangle, circle (C) Square, circle (D) Rectangle, ellipse

24.The edge of cube is 20 cm. How many small cubes of edge-length 5 cmcan be formed from this cube?
(A) 100 (B) 32 (C) 4 (D) 64

25.A cuboidal metal of dimensions 44 cm × 30 cm × 15 cm was melted & casted into a cylinder of height 28 cm. Its radius is-
(A) 10 cm (B) 15 cm (C) 20 cm (D) None of them.

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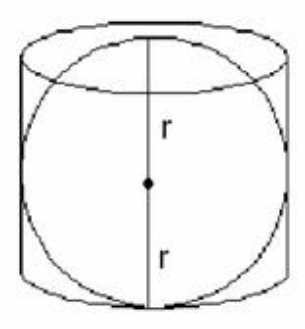
26.The minutes hand of a clock is $\sqrt{21}$ cm long. Find the area described by the minutes hand on the face of clock between 7.00 a.m and 7.05a.m.

27.There is a top of the shape of a cone over a hemisphere. The radius of the hemisphere is 3.5 cm. The total height of the top is 15.5 cm. The total area of top is-

28.A right circular cylinder just enclosed a sphere of radius r as shown in figure find the surface area of the sphere and also curved surface area of cylinder. Find their ratio



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29.The diameter of a sphere is decreased by 50%. What is the ratio between initial and final curved surface areas?

30.An iron pipe 20cm long has exterior diameter equal to 25cm. If the thickness of the pipe is 1cm, find the whole surface area of the pipe.

31.A hollow sphere of internal and external diameter 4 cm and 8 cm, is melted into a cone of base diameter 8 cm. Find the height of the cone?

32.A cylindrical box whose height is 10cm times of its radius 5cm , is melted and recast into hemispherical balls of same radius. The no. of balls will be.

33.The lateral surface of a cylinder is equal to the curved surface of a cone. If the radiusis the same, find the ratio of the height of the cylinder and slant height of the cone.

34.Find the volume of the largest right circular cone that can be fitted in a cube whose edge is 14cm.

35.The radius of the base of a conical tent is 12 m. The tent is 9 m high. Find the cost of the canvas required to make the tent if one square meter of canvas costs Rs. 120. (take $\pi = 3.14$)

36.The area of the base of a cone is 616 sq. cm. Its height is 48 cm, then its total surface area is:

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

38.A metallic right circular cone of height 9 cm and base radius 7 cm is melted into a cuboid whose two sides are 11 cm and 6 cm. What is the third side of the cuboid?

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

40.The radius and slant height of a cone are in the ratio 4:7. If its curved surface area is 792 sq cm., find its radius.

41.The diameter of roller is 1.5m and 0.84m long. If it takes 100 revolution to level a playground, find the cost of leveling this ground at the rate of 50 paise per square meter.

42.A pendulum swings through an angle of 30 degree and describes an arc of length 7.7cm. Find the length of the pendulum.

43.A plastic box 1.25 m long,1.05 m wide and 75cm deep is to be made. It is to be open at the top. Ignoring the thickness of the plastic sheet, determine the area of the sheet required for making the box and also find the cost of sheet for it, if a sheet measuring 1sq.m. cost Rs. 20.

44.Three metal cubes whose edges measure 3cm,4cm and 5cm respectively are melted to form a single cube. Find the edge of the new cube. Also find the surface area.

45.If V is the volume of a cuboid of dimension a,b,c and S is its surface area, then prove that $\frac{1}{v}=\frac{2}{s}\left(\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)$

46.A wall of the length 10m was to be built across an open ground. The height of the wall is 4 m and thickness of the wall is 24cm. If this wall is to be built up with bricks whose dimensions are 24cmx12cmx8cm, how many bricks would be required?

47.A circular tent is cylindrical to a height of 3 metres and conical above it. If its diameter is 105m and the slant height of the conical portion is 53m, calculate the length of canvas 5m wide to make the required tent.

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48.A cylinder is within the cube touching all the vertical face. A cone is inside the cylinder. If the height and base of a cone is same as cylinder, find the ratio of their volumes.

49.An open box is made of wood 3cm thick. Its external length, breadth and height are 1.48m,1.16m and 8.3dm. Find the cost of painting the inner surface of Rs. 50 per sq metre.

50.If two circular cylinders of equal volume have their height in the ratio 1:4, find the ratio of their radii.

51.A wood toy is in the form of a cone surmounted on a hemisphere. The diameter of the base of the cone is 6cm and its height is 4cm. Find the cost of painting the toy at the rate of Rs. 5 per 1000 sq.cm.