

SURFACE AREAS AND VOLUMES

1. The surface area of a cuboid is
(a) $2(lb + bh + lh)$ (b) $3(lb + bh + lh)$ (c) $2(lb - bh - lh)$ (d) $3(lb - bh - lh)$
 2. The surface area of a cube if edge 'a' is
(a) $7a^2$ (b) $6a^2$ (c) $5a^3$ (d) $5a^2$
 3. The length, breadth and height of a room is 5m, 4m and 3m. The cost of white washing its four walls at the rate of Rs. 7.50 per m^2 is
(a) Rs. 110 (b) Rs. 109 (c) Rs. 220 (d) Rs. 105
 4. The perimeter of floor of rectangular hall is 250m. The cost of the white washing its four walls is Rs. 15000. The height of the room is
(a) 5m (b) 4m (c) 6m (d) 8m
 5. The breadth of a room is twice its height and is half of its length. The volume of room is 512dm^3 . Its dimensions are
(a) 16 dm, 8 dm, 4 dm (b) 12 dm, 8 dm, 2 dm
(c) 8 dm, 4 dm, 2 dm (d) 10 dm, 15 dm, 20 dm
 6. The area of three adjacent faces of a cube is x, y and z. Its volume V is
(a) $V = xyz$ (b) $V^3 = xyz$ (c) $V^2 = xyz$ (d) none of these
 7. Two cubes each of edge 12 cm are joined. The surface area of new cuboid is
(a) 140 cm^2 (b) 1440 cm^2 (c) 144 cm^2 (d) 72 cm^2
 8. The curved surface area of cylinder of height 'h' and base radius 'r' is
(a) $2\pi rh$ (b) πrh (c) $\frac{1}{2}\pi rh$ (d) none of these
 9. The total surface area of cylinder of base radius 'r' and height 'h' is
(a) $2\pi(r + h)$ (b) $2\pi r(r + h)$ (c) $3\pi r(r + h)$ (d) $4\pi r(r + h)$
 10. The curved surface area of a cylinder of height 14 cm is 88 cm^2 . The diameter of its circular base is
(a) 5cm (b) 4cm (c) 3cm (d) 2cm
 11. It is required to make a closed cylindrical tank of height 1 m and base diameter 140cm from a metal sheet. How many square meters a sheet are required for the same?
(a) 6.45m^2 (b) 6.48m^2 (c) 7.48m^2 (d) 5.48m^2 .
 12. A metal pipe is 77 cm long. Inner diameter of cross section is 4 cm and outer diameter is 4.4 cm. Its inner curved surface area is:
(a) 864 cm^2 (b) 968 cm^2 (c) 768 cm^2 (d) none of these
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SURFACE AREAS AND VOLUMES

1. The diameter of a roller is 84 cm and its length is 120 cm. It takes 500 complete revolutions to move once over to level a playground. The area of the playground in m^2 is:
(a) 1584 (b) 1284 (c) 1384 (d) 1184
 2. A cylindrical pillar is 50 cm in diameter and 3.5 m in height. The cost of painting its curved surface at the rate of Rs. 12.50 per m^2 is:
(a) Rs. 68.75 (b) Rs. 58.75 (c) Rs. 48.75 (d) Rs. 38.75
 3. The inner diameter of circular well is 3.5m. It is 10m deep. Its inner curved surface area in m^2 is:
(a) 120 (b) 110 (c) 130 (d) 140
 4. In a hot water heating system there is a cylindrical pipe of length 28 m and diameter 5 cm. The total radiating surface area in the system in m^2 is:
(a) 6.6 (b) 5.5 (c) 4.4 (d) 3.4
 5. The curved surface area of a right circular cone of slant height 10 cm and base radius 7 cm is
(a) 120 cm^2 (b) 220 cm^2 (c) 240 cm^2 (d) 140 cm^2
 6. The height of a cone is 16 cm and base radius is 12 cm. Its slant height is
(a) 10 cm (b) 15 cm (c) 20 cm (d) 8 cm
 7. The curved surface area of a right circular cone of height 16 cm and base radius 12 cm is
(a) 753.6 cm^2 (b) 1205.76 cm^2 (c) 863.8 cm^2 (d) 907.6 cm^2
 8. The curved surface area of a right circular cone of slant height 10 cm and base radius 10.5 cm is
(a) 185 cm^2 (b) 160 cm^2 (c) 165 cm^2 (d) 195 cm^2
 9. The slant height of a cone is 26 cm and base diameter is 20 cm. Its height is
(a) 24 cm (b) 25 cm (c) 23 cm (d) 35 cm
 10. The curved surface area of a cone is 308 cm^2 and its slant height is 14 cm. The radius of its base is
(a) 8 cm (b) 7 cm (c) 9 cm (d) 12 cm
 11. A conical tent is 10 m high and the radius of its base is 24 m. The slant height of tent is
(a) 26 m (b) 28 m (c) 25 m (d) 27 m
 12. The slant height and base diameter of a conical tomb are 25 m and 14 m respectively. The cost of white washing its curved surface at the rate of Rs. 210 per 100 m^2 is
(a) Rs. 1233 (b) Rs. 1155 (c) Rs. 1388 (d) Rs. 1432
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- 1.** A joker's cap is in the form of cone of base radius 7 cm and height 24 cm. The area of sheet to make 10 such caps is
(a) 5500 cm^2 (b) 6500 cm^2 (c) 8500 cm^2 (d) 3500 cm^2

 - 2.** The curved surface area of a hemisphere of radius 'r' is
(a) $2\pi r^2$ (b) $4\pi r^2$ (c) $3\pi r^2$ (d) $5\pi r^2$

 - 3.** The total surface area of a hemisphere of radius 'r' is
(a) $2\pi r^2$ (b) $4\pi r^2$ (c) $3\pi r^2$ (d) $5\pi r^2$

 - 4.** The curved surface area of a sphere of radius 7 cm is:
(a) 516 cm^2 (b) 616 cm^2 (c) 716 cm^2 (d) 880 cm^2

 - 5.** The curved surface area of a hemisphere of radius 21 cm is:
(a) 2772 cm^2 (b) 2564 cm^2 (c) 3772 cm^2 (d) 4772 cm^2

 - 6.** The curved surface area of a sphere of radius 14 cm is:
(a) 2464 cm^2 (b) 2428 cm^2 (c) 2464 cm^2 (d) none of these.

 - 7.** The curved surface area of a sphere of diameter 14 cm is:
(a) 516 cm^2 (b) 616 cm^2 (c) 716 cm^2 (d) 880 cm^2

 - 8.** Total surface area of hemisphere of radius 10 cm is
(a) 942 cm^2 (b) 940 cm^2 (c) 842 cm^2 (d) 840 cm^2

 - 9.** The radius of a spherical balloon increases from 7 cm to 14 cm as air is being pumped into it. The ratio of surface area of the balloon in the two cases is:
(a) 4 : 1 (b) 1 : 4 (c) 3 : 1 (d) 1 : 3

 - 10.** A matchbox measures $4 \text{ cm} \times 2.5 \text{ cm} \times 1.5 \text{ cm}$. The volume of packet containing 12 such boxes is:
(a) 160 cm^3 (b) 180 cm^3 (c) 160 cm^2 (d) 180 cm^2

 - 11.** A cuboidal water tank is 6 m long, 5 m wide and 4.5 m deep. How many litres of water can it hold?
(a) 1350 liters (b) 13500 liters (c) 135000 liters (d) 135 liters

 - 12.** A cuboidal vessel is 10 m long and 8 m wide. How high must it be made to hold 380 cubic metres of a liquid?
(a) 4.75 m (b) 7.85 m (c) 4.75 cm (d) none of these

 - 13.** The capacity of a cuboidal tank is 50000 litres. The length and depth are respectively 2.5 m and 10 m. Its breadth is
(a) 4 m (b) 3 m (c) 2 m (d) 5 m

 - 14.** A godown measures $40 \text{ m} \times 25 \text{ m} \times 10 \text{ m}$. Find the maximum number of wooden crates each measuring $1.5 \text{ m} \times 1.25 \text{ m} \times 0.5 \text{ m}$ that can be stored in the godown.
(a) 18000 (b) 16000 (c) 15000 (d) 14000
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1. A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water will fall into the sea in a minute?
(a) 4000 m^3 (b) 40 m^3 (c) 400 m^3 (d) 40000 m^3
 2. The circumference of the base of a cylindrical vessel is 132 cm and its height is 25 cm. How many litres of water can it hold?
(a) 33.75 litre (b) 34.65 litre (c) 35.75 litre (d) 38.75 litre
 3. If the lateral surface of a cylinder is 94.2 cm^2 and its height is 5 cm, then find radius of its base
(a) 5cm (b) 4cm (c) 3cm (d) 6cm
 4. It costs Rs 2200 to paint the inner curved surface of a cylindrical vessel 10 m deep. If the cost of painting is at the rate of Rs 20 per m^2 , find radius of the base,
(a) 1.75 m (b) 1.85 m (c) 1.95 m (d) 1.65 m
 5. The height and the slant height of a cone are 21 cm and 28 cm respectively. Find the volume of the cone.
(a) 5546 cm^3 (b) 7546 cm^3 (c) 5564 m^3 (d) 8546 cm^3
 6. Find the volume of the right circular cone with radius 6 cm, height 7 cm
(a) 254 cm^3 (b) 264 cm^3 (c) 274 cm^2 (d) 284 cm^3
 7. The radius and height of a conical vessel are 7 cm and 25 cm respectively. Its capacity in litres is
(a) 1.232 litre (b) 1.5 litre (c) 1.35 litre (d) 1.6 litre
 8. The height of a cone is 15 cm. If its volume is 1570 cm^3 , find the radius of the base.
(a) 12 cm (b) 10 cm (c) 15 cm (d) 18 cm
 9. If the volume of a right circular cone of height 9 cm is $48\pi \text{ cm}^3$, find the diameter of its base.
(a) 12 cm (b) 10 cm (c) 6 cm (d) 8 cm
 10. A conical pit of top diameter 3.5 m is 12 m deep. What is its capacity in kilolitres?
(a) 38.5 kl (b) 48.5 kl (c) 39.5 kl (d) 47.5 kl
 11. Find the capacity in litres of a conical vessel with radius 7 cm, slant height 25 cm
(a) 1.232 litre (b) 1.5 litre (c) 1.35 litre (d) none of these
 12. The diameter of the moon is approximately one-fourth of the diameter of the earth. What fraction of the volume of the earth is the volume of the moon?
(a) $\frac{1}{64}$ (b) $\frac{1}{32}$ (c) $\frac{1}{16}$ (d) $\frac{1}{48}$
 13. The dimensions of a cuboid are 50 cm x 40 cm x 10 cm. Its volume in litres is:
(a) 10 litres (b) 12 litres (c) 20 litres (d) 25 litres
 14. The volume of a cuboidal tank is 250 m^3 . If its base area is 50 m^2 then depth of the tank is
(a) 5 m (b) 200 m (c) 300 m (d) 12500 m
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- 11.** The dimensions of a prayer Hall are 20m x 15m x 8m. Find the cost of painting its walls at Rs. 10 per m^2 .
- 12.** Find the curved surface area of a right circular cylinder whose height is 13.5 cm and radius of its base is 7 cm. Find also its surface area.
- 13.** The exterior diameter of an iron pipe is 25cm and it is one cm thick. Find the whole surface area of the pipe if it is 21cm long.
- 14.** A roller 150 cm long has a diameter of 70 cm. To level a playground it takes 750 complete revolutions. Determine the cost of leveling the playground at the rate of 75 paise per m^2 .
- 15.** Find the total surface area of a cone, if its slant height is 21 cm and the diameter of its base is 24 cm.
- 16.** The volume of a sphere is 4851 cm^3 . How much should its radius be reduced so that its volume becomes $\frac{4312}{3} \text{ cm}^3$.
- 17.** A river, 3 m deep and 40m wide, is flowing at the rate of 2km/hr. How much water will fall into the sea in a minute?
- 18.** Find the capacity in litres of a conical vessel whose diameter is 14 cm and slant height is 25 cm.
- 19.** What is the total surface area of a hemisphere of base radius 7cm?
- 20.** A village having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring 20m x 15m x 6m. For how many days, the water of the tank will be sufficient for the village?
- 21.** Mary wants to decorate her Christmas tree. She wants to place the tree on a wooden box covered with coloured paper with picture of Santa Claus on it. She must know the exact quantity of paper to buy for this purpose. If the box has length, breadth and height as 80 cm, 40 cm and 20 cm respectively how many square sheets of paper of side 40 cm would she require?
- 22.** Hameed has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base, covered with square tiles of side 25 cm. Find how much he would spend for the tiles, if the cost of the tiles is Rs 360 per dozen.
- 23.** A small indoor greenhouse (herbarium) is made entirely of glass panes (including base) held together with tape. It is 30 cm long, 25 cm wide and 25 cm high. (i) What is the area of the glass? (ii) How much of tape is needed for all the 12 edges?
- 24.** Shanti Sweets Stall was placing an order for making cardboard boxes for packing their sweets. Two sizes of boxes were required. The bigger of dimensions $25 \text{ cm} \times 20 \text{ cm} \times 5 \text{ cm}$ and the smaller of dimensions $15 \text{ cm} \times 12 \text{ cm} \times 5 \text{ cm}$. For all the overlaps, 5% of the total surface area is required extra. If the cost of the cardboard is Rs 4 for 1000 cm^2 , find the cost of cardboard required for supplying 250 boxes of each kind.

- 12.** The circumference of the base of a cylindrical vessel is 132 cm and its height is 25 cm. If $1000 \text{ cu.cm} = 1 \text{ liter}$, the number of litres, of water the vessel can hold is
- A. 17.325 B. 34.65 C. 34.5 D. 69.30
- 13.** The number of litres of milk a hemispherical bowl of radius 10.5 cm can hold is
- A. 2.47 B. 2.476 C. 2.376 D. 3.476
- 14.** The number of bricks, each measuring $18 \text{ cm} \times 12 \text{ cm} \times 10 \text{ cm}$ are required to build a 1 wall $12 \text{ m} \times 0.6 \text{ m} \times 4.5 \text{ m}$ if $\frac{1}{10}$ of its volume is taken by mortar, is
- A. 15000 B. 13500 C. 12500 D. 13900
- 15.** The radius of a sphere is 10 cm. If its radius is increased by 1 cm, the volume of the sphere is increased by
- A. 13.3% B. 21.1% C. 30% D. 33.1%
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1. If the dimensions of a cuboid are 3 cm, 4 cm and 10 cm, then its surface area is
A. 82 cm^2 B. 123 cm^2 C. 164 cm^2 D. 216 cm^2
2. The volume of the cuboid in Q.1 is
A. 17 cm^3 B. 164 cm^3 C. 120 cm^3 D. 240 cm^3
3. The surface area of a cuboid is 1372 sq. cm. If its dimensions are in the ratio of 4 : 2 : 1, then its length is
A. 7 cm B. 14 cm C. 21 cm D. 28 cm
4. The base radius and height of a right circular cylinder are 7 cm and 13.5 cm. The volume of cylinder is
A. 1579 cm^3 B. 1897 cm^3 C. 2079 cm^3 D. 2197 cm^3
5. The base radius of a cone is 5 cm and its height is 12 cm. Its slant height is
A. 13 cm B. 19.5 cm C. 26 cm D. 52 cm
6. The curved surface area of a cylinder of height 14 cm is 88 sq. cm. The diameter of the cylinder is
A. 0.5 cm B. 1.0 cm C. 1.5 cm D. 2.0 cm
7. The lateral surface area of a right circular cone of height 28 cm and base radius 21 cm is
A. 1155 cm^2 B. 1055 cm^2 C. 2110 cm^2 D. 2310 cm^2
8. The circumference of the base of a 8 m high conical tent is $\frac{264}{7} \text{ m}^2$. The area of canvas required to make the tent is
A. $\frac{1360}{7} \text{ cm}^2$ B. $\frac{1360}{14} \text{ cm}^2$ C. 286 cm^2 D. 98 cm^2
9. The area of metal sheet required to make a closed hollow cone of height 24 m and base radius 7 m is
A. 176 m^2 B. 352 m^2 C. 704 m^2 D. 1408 m^2
10. The diameter of a sphere whose surface area is 346.5 cm^2 is
A. 5.25 cm B. 5.75 cm C. 11.5 cm D. 10.5 cm
11. The radius of a spherical balloon increases from 7 cm to 14 cm when air is pumped into it. The ratio of the surface area of original balloon to inflated one is
A. 1 : 2 B. 1 : 3 C. 1 : 4 D. 4 : 3

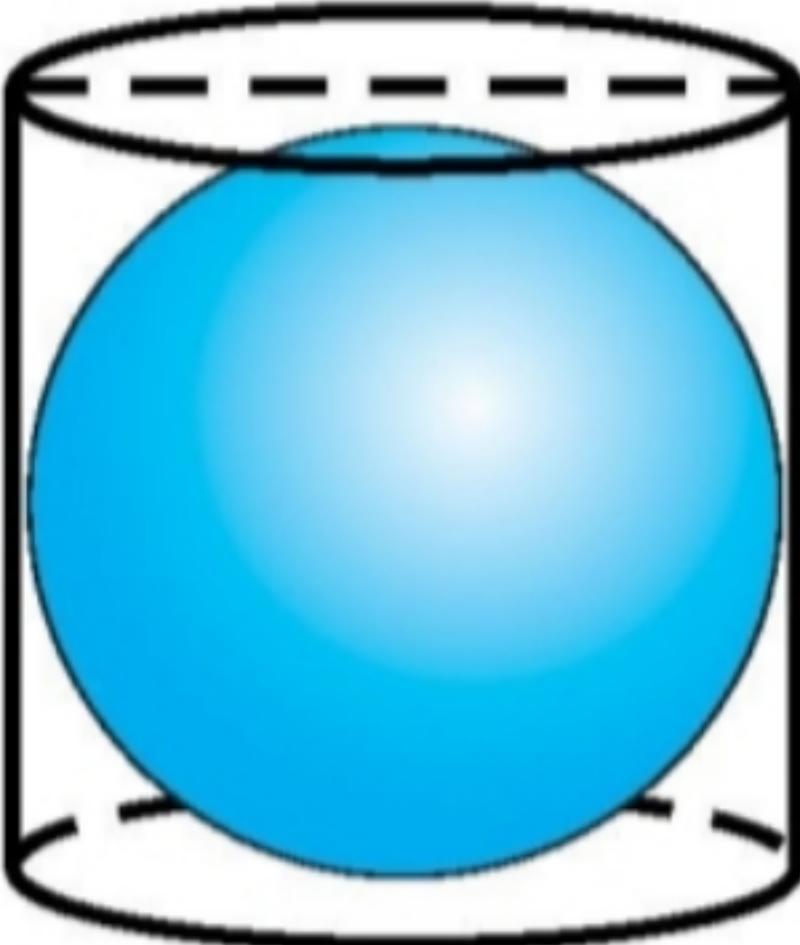
CLASS IX: CHAPTER – 13 **SURFACE AREAS AND VOLUMES**

1. The length, breadth and height of a cuboidal solid is 4 cm, 3 cm and 2 cm respectively. Its volume is
 (a) $(4 + 3 + 2) \text{ cm}^3$ (b) $2(4 + 3 + 2) \text{ cm}^3$ (c) $(4 \times 3 \times 2) \text{ cm}^3$ (d) $2(4 + 3) \times 2 \text{ cm}^3$
 2. The volume of a cuboidal solid of length 8 m and breadth 5 m is 200 m^3 . Find its height.
 (a) 5 m (b) 6 m (c) 15 m (d) 18 m
 3. The curved surface area of a sphere is 616 cm^2 . Its radius is
 (a) 7 cm (b) 5 cm (c) 6 cm (d) 8 cm
 4. If radius of a sphere is $\frac{2d}{3}$ then its volume is
 (a) $\frac{32}{81}\pi d^3$ (b) $\frac{23}{4}\pi d^3$ (c) $\frac{32}{3}\pi d^3$ (d) $\frac{34}{3}\pi d^3$
 5. The capacity of a cylindrical tank is 6160 cm^3 . Its base diameter is 28 m. The depth of this tank is
 (a) 5 m (b) 10 m (c) 15 m (d) 8 m
 6. The volume of a cylinder of radius r and length h is:
 (a) $2\pi rh$ (b) $\frac{4}{3}\pi r^2 h$ (c) $\pi r^2 h$ (d) $2\pi r^2 h$
 7. Base radius of two cylinder are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. The ratio of their volumes is
 (a) 27 : 20 (b) 25 : 24 (c) 20 : 27 (d) 15 : 20
 8. If base radius and height of a cylinder are increased by 100% then its volume increased by:
 (a) 30% (b) 40% (c) 42% (d) 33.1%
 9. The diameter of a sphere is 14 m. The volume of this sphere is
 (a) $1437\frac{1}{3} \text{ m}^3$ (b) $1357\frac{1}{3} \text{ m}^3$ (c) $1437\frac{2}{3} \text{ m}^3$ (d) $1337\frac{2}{3} \text{ m}^3$
 10. The volume of a sphere is 524 cm^3 . The diameter of sphere is
 (a) 5cm (b) 4cm (c) 3cm (d) 7cm
 11. The total surface area of a cylinder is $40\pi \text{ cm}^2$. If height is 5.5 cm then its base radius is
 (a) 5cm (b) 2.5cm (c) 1.5cm (d) 10cm
 12. The area of circular base of a right circular cone is 78.5 cm^2 . If its height is 12 cm then its volume is
 (a) 31.4 cm^3 (b) 3.14 cm^3 (c) 314 cm^3 (d) none of these
 13. The base radius of a cone is 11.3 cm and curved surface area is 355 cm^2 . Its height is (Take $\pi = \frac{355}{113}$)
 (a) 5 cm (b) 10 cm (c) 11 cm (d) 9 cm
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- 63.** A small village, having a population of 5000, requires 75 litres of water per head per day. The village has got an overhead tank of measurement $40\text{ m} \times 25\text{ m} \times 15\text{ m}$. For how many days will the water of this tank last?
- 64.** A shopkeeper has one spherical laddoo of radius 5cm. With the same amount of material, how many laddoos of radius 2.5 cm can be made?
- 65.** A right triangle with sides 6 cm, 8 cm and 10 cm is revolved about the side 8 cm. Find the volume and the curved surface of the solid so formed.
- 66.** Rain water which falls on a flat rectangular surface of length 6 m and breadth 4 m is transferred into a cylindrical vessel of internal radius 20 cm. What will be the height of water in the cylindrical vessel if the rain fall is 1 cm. Give your answer to the nearest integer. (Take $\pi = 3.14$)
- 67.** A cylindrical tube opened at both the ends is made of iron sheet which is 2 cm thick. If the outer diameter is 16 cm and its length is 100 cm, find how many cubic centimeters of iron has been used in making the tube ?
- 68.** A semi-circular sheet of metal of diameter 28cm is bent to form an open conical cup. Find the capacity of the cup.
- 69.** A cloth having an area of 165 m^2 is shaped into the form of a conical tent of radius 5 m
- (i) How many students can sit in the tent if a student, on an average, occupies $\frac{5}{7}\text{ m}^2$ on the ground?
- (ii) Find the volume of the cone.
- 70.** The water for a factory is stored in a hemispherical tank whose internal diameter is 14 m. The tank contains 50 kilolitres of water. Water is pumped into the tank to fill to its capacity. Calculate the volume of water pumped into the tank.
- 71.** The volumes of the two spheres are in the ratio 64 : 27. Find the ratio of their surface areas.
- 72.** A cube of side 4 cm contains a sphere touching its sides. Find the volume of the gap in between.
- 73.** A sphere and a right circular cylinder of the same radius have equal volumes. By what percentage does the diameter of the cylinder exceed its height ?
- 74.** 30 circular plates, each of radius 14 cm and thickness 3cm are placed one above the another to form a cylindrical solid. Find : (i) the total surface area (ii) volume of the cylinder so formed.
- 75.** A hemispherical tank is made up of an iron sheet 1 cm thick. If the inner radius is 1 m, then find the volume of the iron used to make the tank.



- 47.** The pillars of a temple are cylindrically shaped. If each pillar has a circular base of radius 20 cm and height 10 m, how much concrete mixture would be required to build 14 such pillars?
- 48.** Monica has a piece of canvas whose area is 551 m². She uses it to have a conical tent made, with a base radius of 7 m. Assuming that all the stitching margins and the wastage incurred while cutting, amounts to approximately 1 m², find the volume of the tent that can be made with it.
- 49.** 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.
- 50.** A heap of wheat is in the form of a cone whose diameter is 10.5 m and height is 3 m. Find its volume. The heap is to be covered by canvas to protect it from rain. Find the area of the canvas required.
- 51.** A dome of a building is in the form of a hemisphere. From inside, it was white-washed at the cost of Rs 498.96. If the cost of white-washing is Rs 2.00 per square metre, find the (i) inside surface area of the dome, (ii) volume of the air inside the dome.
- 52.** Twenty seven solid iron spheres, each of radius r and surface area S are melted to form a sphere with surface area S' . Find the (i) radius r' of the new sphere, (ii) ratio of S and S' .
- 53.** A capsule of medicine is in the shape of a sphere of diameter 3.5 mm. How much medicine (in mm³) is needed to fill this capsule?
- 54.** The surface area of a sphere of radius 5 cm is five times the area of the curved surface of a cone of radius 4 cm. Find the height and the volume of the cone (taking $\pi = \frac{22}{7}$)
- 55.** The radius of a sphere is increased by 10%. Prove that the volume will be increased by 33.1% approximately.
- 56.** Metal spheres, each of radius 2 cm, are packed into a rectangular box of internal dimensions 16 cm \times 8 cm \times 8 cm. When 16 spheres are packed the box is filled with preservative liquid. Find the volume of this liquid. Give your answer to the nearest integer. [Use $\pi = 3.14$]
- 57.** A storage tank is in the form of a cube. When it is full of water, the volume of water is 15.625 m³. If the present depth of water is 1.3 m, find the volume of water already used from the tank.
- 58.** Find the amount of water displaced by a solid spherical ball of diameter 4.2 cm, when it is completely immersed in water.
- 59.** How many square metres of canvas is required for a conical tent whose height is 3.5 m and the radius of the base is 12 m?
- 60.** Two solid spheres made of the same metal have weights 5920 g and 740 g, respectively. Determine the radius of the larger sphere, if the diameter of the smaller one is 5 cm.
- 61.** A school provides milk to the students daily in a cylindrical glasses of diameter 7 cm. If the glass is filled with milk upto an height of 12 cm, find how many litres of milk is needed to serve 1600 students.
- 62.** A cylindrical roller 2.5 m in length, 1.75 m in radius when rolled on a road was found to cover the area of 5500 m². How many revolutions did it make?

- 34.** What length of tarpaulin 3 m wide will be required to make conical tent of height 8 m and base radius 6 m? Assume that the extra length of material that will be required for stitching margins and wastage in cutting is approximately 20 cm (Use $\pi = 3.14$).
- 35.** The slant height and base diameter of a conical tomb are 25 m and 14 m respectively. Find the cost of white-washing its curved surface at the rate of Rs 210 per 100 m^2 .
- 36.** A joker's cap is in the form of a right circular cone of base radius 7 cm and height 24 cm. Find the area of the sheet required to make 10 such caps.
- 37.** A hemispherical dome of a building needs to be painted. If the circumference of the base of the dome is 17.6 m, find the cost of painting it, given the cost of painting is Rs 5 per 100 cm^2 .
- 38.** A right circular cylinder just encloses a sphere of radius r . Find (i) surface area of the sphere, (ii) curved surface area of the cylinder, (iii) ratio of the areas obtained in (i) and (ii).
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- 39.** A hemispherical bowl is made of steel, 0.25 cm thick. The inner radius of the bowl is 5 cm. Find the outer curved surface area of the bowl.
- 40.** A wall of length 10 m was to be built across an open ground. The height of the wall is 4 m and thickness of the wall is 24 cm. If this wall is to be built up with bricks whose dimensions are $24 \text{ cm} \times 12 \text{ cm} \times 8 \text{ cm}$, how many bricks would be required?
- 41.** A village, having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring $20 \text{ m} \times 15 \text{ m} \times 6 \text{ m}$. For how many days will the water of this tank last?
- 42.** A godown measures $40 \text{ m} \times 25 \text{ m} \times 10 \text{ m}$. Find the maximum number of wooden crates each measuring $1.5 \text{ m} \times 1.25 \text{ m} \times 0.5 \text{ m}$ that can be stored in the godown.
- 43.** A solid cube of side 12 cm is cut into eight cubes of equal volume. What will be the side of the new cube? Also, find the ratio between their surface areas.
- 44.** A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water will fall into the sea in a minute?
- 45.** The capacity of a closed cylindrical vessel of height 1 m is 15.4 litres. How many square metres of metal sheet would be needed to make it?
- 46.** A lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled in the interior. The diameter of the pencil is 7 mm and the diameter of the graphite is 1 mm. If the length of the pencil is 14 cm, find the volume of the wood and that of the graphite.

25. Parveen wanted to make a temporary shelter for her car, by making a box-like structure with tarpaulin that covers all the four sides and the top of the car (with the front face as a flap which can be rolled up). Assuming that the stitching margins are very small, and therefore negligible, how much tarpaulin would be required to make the shelter of height 2.5 m, with base dimensions $4\text{ m} \times 3\text{ m}$?

26. Savitri had to make a model of a cylindrical kaleidoscope for her science project. She wanted to use chart paper to make the curved surface of the kaleidoscope. What would be the area of chart paper required by her, if she wanted to make a kaleidoscope of length 25 cm with a 3.5 cm radius?

27. A metal pipe is 77 cm long. The inner diameter of a cross section is 4 cm, the outer diameter being 4.4 cm. Find its
(i) inner curved surface area,
(ii) outer curved surface area,
(iii) total surface area.



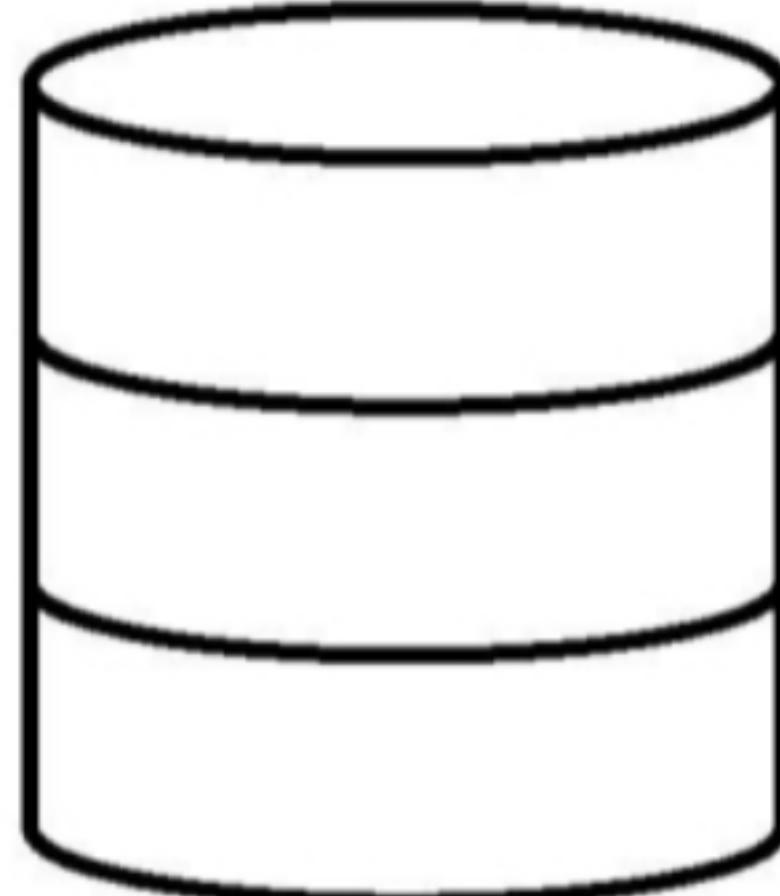
28. Find (i) the lateral or curved surface area of a closed cylindrical petrol storage tank that is 4.2 m in diameter and 4.5 m high. (ii) how much steel was actually used, if $\frac{1}{12}$ of the steel actually used was wasted in making the tank.

29. Find the curved surface area of a right circular cone whose slant height is 10 cm and base radius is 7 cm.

30. The height of a cone is 16 cm and its base radius is 12 cm. Find the curved surface area and the total surface area of the cone (Use $\pi = 3.14$).

31. A corn cob shaped somewhat like a cone, has the radius of its broadest end as 2.1 cm and length (height) as 20 cm. If each 1 cm^2 of the surface of the cob carries an average of four grains, find how many grains you would find on the entire cob.

32. In the adjoining figure you see the frame of a lampshade. It is to be covered with a decorative cloth. The frame has a base diameter of 20 cm and height of 30 cm. A margin of 2.5 cm is to be given for folding it over the top and bottom of the frame. Find how much cloth is required for covering the lampshade.



33. A conical tent is 10 m high and the radius of its base is 24 m. Find (i) slant height of the tent. (ii) cost of the canvas required to make the tent, if the cost of 1 m^2 canvas is Rs 70.