doubtnut
India's Number 1 Education App

MATHS

NCERT - NCERT MATHEMATICS(BENGALI ENGLISH)

SURFACE AREAS AND VOLUMES

Example

1. A Rectangular paper of width 14 cm is folded along its width and a cylinder of radius 20 cm

is formed. Find the volume of the cylinder (Take $\pi = \frac{22}{7}$)

Watch Video Solution

2. A Rectangular piece of paper $11cm \times 4$ cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder.

Watch Video Solution

3. A rectangular sheet of paper $44cm \times 18$cm is rolled along the length to form a cylinder. Assuming that the cylinder is solid (Completely filled), find its radius and the total surface area.

Watch Video Solution

4. Circular discs 5 mm thickness, are placed one above the other to form a cylinder of

curved surface area $462cm^2$. Find the number of discs, if the radius is 3.5 cm

Watch Video Solution

5. A hollow cylinder having external radius 8 cm and height 10 cm has a total surface area of $338\pi cm^2$. Find the thickness of the hollow metallic cylinder.

Watch Video Solution

6. A corn cob shaped like a cone, has the radius of its broadest end as 1.4 cm and length (height) as 12 cm. If each $1cm^2$ of the surface of the cob carries an average of four grains, find how many grains approximately you would find on the entire cob.

Watch Video Solution

7. Find the slant height and vertical height of a Cone with radius 5.6 cm and curved surface

area $158.4cm^2$.

Watch Video Solution

8. A tent is in the form of a cylinder surmounted by a cone having its diameter of the base equal to 24 m. The height of cylinder is 11 m and the vertex of the cone is 5m above the cylinder. Find the cost of making the tent, if the rate of canvas is 10 per m square

Watch Video Solution

9. A conical tent was erected by army at a base camp with height 3m. and base diameter 8m. Find,

(i) The cost of canvas required for making the tent, if the canvas cost rupees 70 per 1 sq.m.

for every person requires $3.5m^3$ air how many can be seated in that tent

Watch Video Solution

10. If the surface area of a sphere is $154cm^2$, find its radius

Watch Video Solution

11. A hemispherical bowl is made up of stone whose thickness is 5 cm. If the inner radius is 35 cm, find the total surface area of the bowl.

Watch Video Solution

12. The hemispherical dome of a building needs to be painted. If the circumference of the base of dome is 17.6 m, find the cost of

painting it, given the cost of painting is Rs.5 Per 100 cm^2

Watch Video Solution

13. The hollow sphere, in which the circus motor cyclist performs his stunts ,has a diameter of 7m. Find the area available to the motor cyclist for riding.

Watch Video Solution

14. A shotput is a metallic sphere of radius 4.9 cm .If the density of the metal is 7.8g. Per cm^3 find the mass of the shotput.

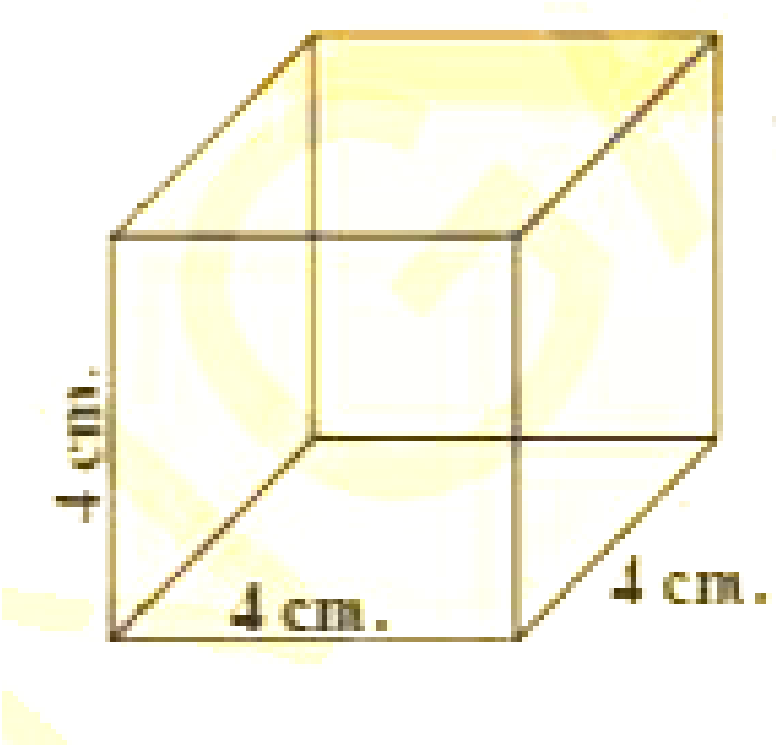
Watch Video Solution

15. A hemispherical bowl has a radius of 3.5 cm What would be the volume of water it would contains?

Watch Video Solution

Do This

1. Find the total Surface area and lateral surface area of the Cube with side 4 cm.



Watch Video Solution

2. Each edge of a cube is increased by 50%. Find the percentage increase in the surface area.

Watch Video Solution

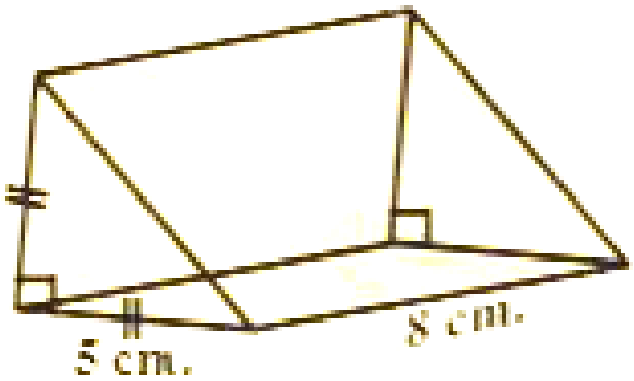
3. Find the volume of cuboid if l=12 cm , b = 10 cm . And h=8cm.

Watch Video Solution

4. Find the volume of cube if,its edge is 10 cm.

Watch Video Solution

5. Find the volume of isosceles right angled triangular prism in



Watch Video Solution

6. Find the volume of a pyramid whose square base is 10 cm. and height 8 cm.

Watch Video Solution

7. The volume of cube is 1728 cubic cm. Find the volume of square pyramid of the same height.

Watch Video Solution

8. Find CSA of each of following cylinders

(i) $r = xcm, h = ycm$

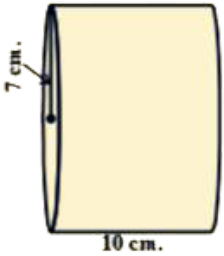
(ii) $d = 7cm, h = 10cm$

(iii) $r = 3, h = 14cm$

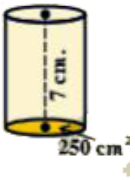
Watch Video Solution

9. Find the Total surface area of each of the following cylinders.

(i)



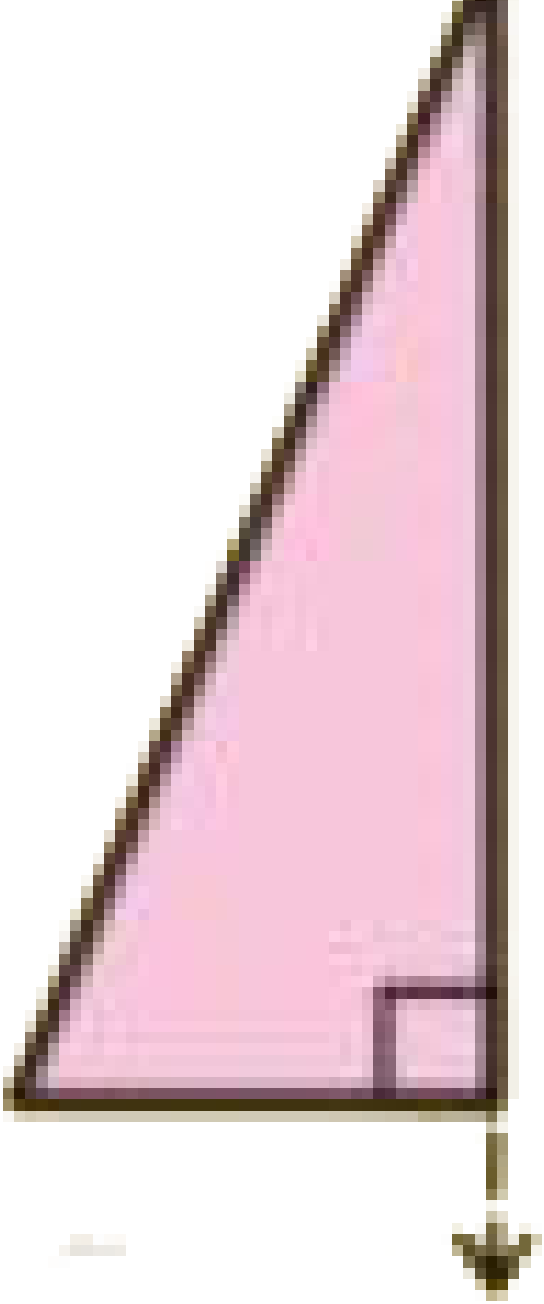
(ii)



Watch Video Solution

10. Cut a right angled triangle, stick a string along its perpendicular side, as shown in fig. (i) hold the both the sides of a string with your hands and rotate it with constant speed.

What fo you observe?



Watch Video Solution

11. Find the curved surface area and total surface area of the each following Right Circular Cones

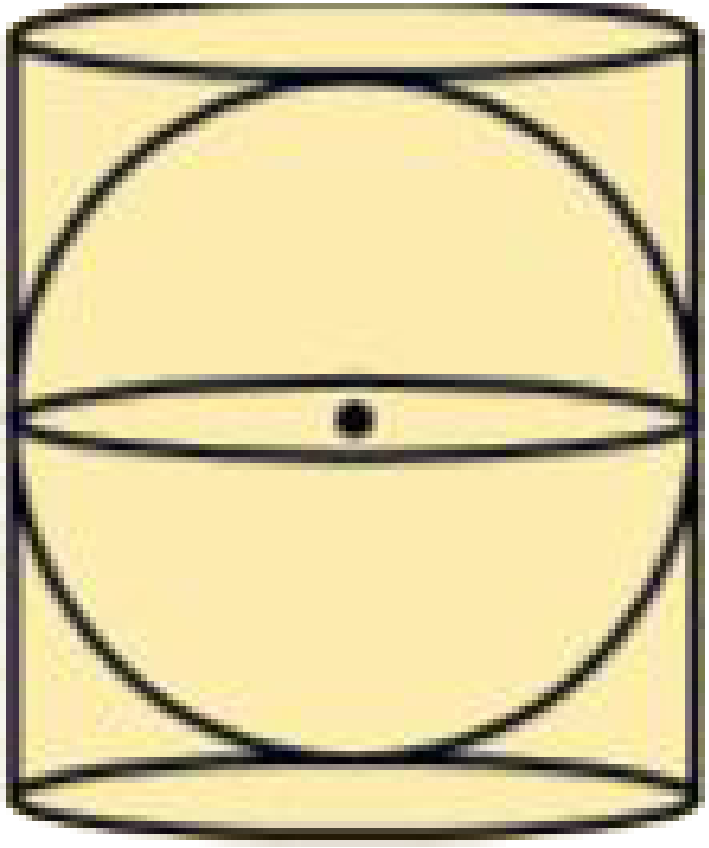
Watch Video Solution

12. A right circular cylinder just enclose a sphere of radius r

Find (i) surface area of the sphere

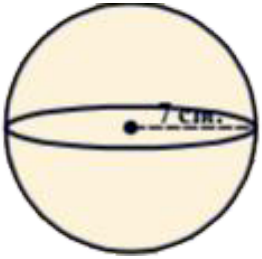
(ii) curved surface area of the cylinder

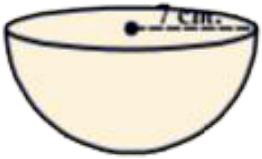
(iii) ratio of the areas obtained in (i) and (ii)



Watch Video Solution

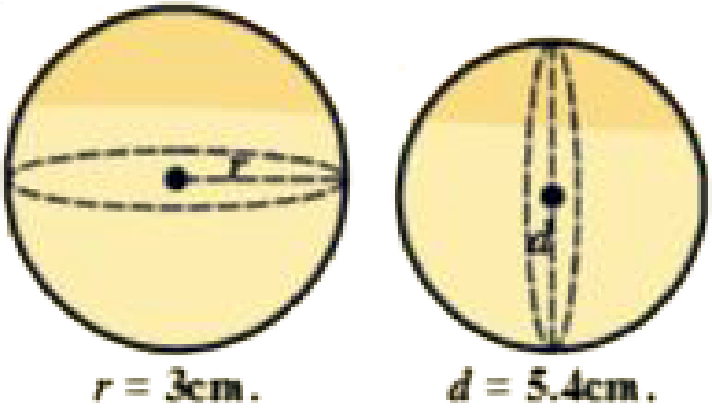
13. Find the surface area of each of the following figure.

(i) 

(ii) 

Watch Video Solution

14. Find the volume of the sphere given in the adjecent figures.



$r = 3\text{cm}$. $d = 5.4\text{cm}$.

Watch Video Solution

15. Find the volume of sphere of radius 6.3 cm

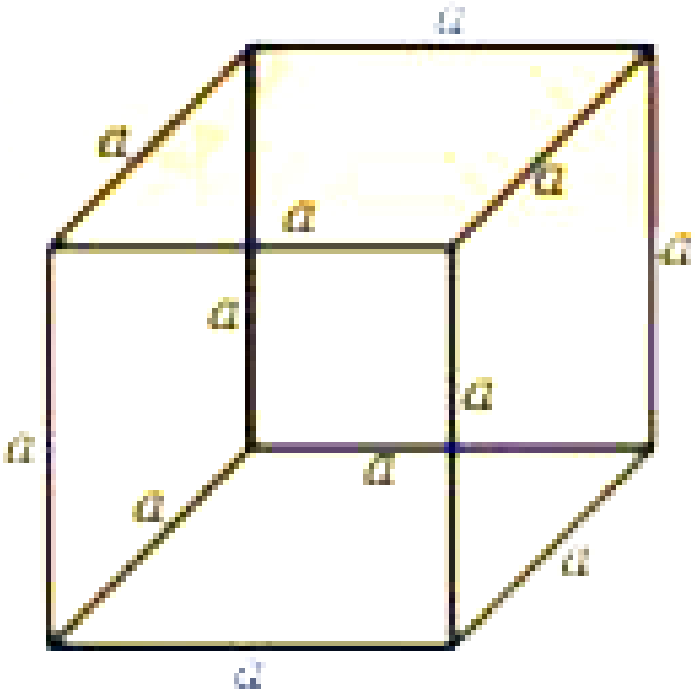
Watch Video Solution

Try This

1. Take a cube of edge ‘l’ cm. and find total surface area and lateral surface area of cube.

Watch Video Solution

2. Find the volume of a cube whose edge is 'a' units



Watch Video Solution

3. Find the edge of a cube whose volume is $1000cm^3$

Watch Video Solution

4. If the radius of a cylinder is doubled keeping its lateral surface area the same, then what is its height ?

Watch Video Solution

5. A hot water system (Geyser) consists of a cylindrical pipe of length 14 m and diameter 5 cm. Find the total radiating surface of hot water system.

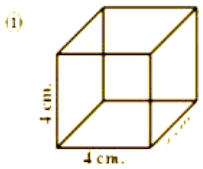
Watch Video Solution

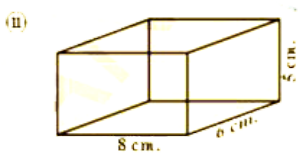
6. Length of a side of a cube is 5 unit, find its total surface.

Watch Video Solution

Exercise 10 1

1. Find the lateral surface area and total surface area of the following right prisms.





Watch Video Solution

2. The total surface area of a cube is 1350 sq.m

Find its volume.

Watch Video Solution

3. Find the area of four walls of a room

(Assume that there are no doors or windows)

if its length 12m. Breadth 10 m. and height 7.5 m.

Watch Video Solution

4. The volume of a cuboid is $1200cm^3$ The length 15 cm .and breadth is 10 cm , Find its height

Watch Video Solution

5. How does the total surface area of a box change if

(i) Each dimension is doubled?

(ii) Each dimension is tripled?

Express in words .Can you find the total surface area of the box if each dimension is raised to n times?

Watch Video Solution

6. The base of prism. Is triangular in shape with sides 3cm , 4cm , and 5cm , Find the volume of the prism if its height is 10 cm .

Watch Video Solution

7. A regular square pyramid is 3m Height and the perimeter of its base is 16 m. Find the volume of the pyramid.

Watch Video Solution

8. An Olympic swimming pool is in the shape of a cuboid of dimensions 50m Long and 25 m wide. If it is 3m Deep throughout , how many liters of water does it hold? $(1cu.m = 1000$ liters)

Watch Video Solution

Exercise 10 2

1. A closed cylindrical tank of height 1.4 m. and radius of the base is 56 cm. is made up of a

thick metal sheet. How much metal sheet is required (Express in square meters)

Watch Video Solution

2. The volume of a cylinder is $308cm^3$. Its heights is 8cm . Find its lateral surface area and total surface area.

Watch Video Solution

3. A metal cuboid of dimension $22cm \times 15cm \times 7.5$ cm , was melted and cast into a cylinder of height 14 cm .What is its radius?

Watch Video Solution

4. An overhead water tanker is in the shape of a cylinder has capacity of 61.6 cu.mts. The diameter of the tank is 5.6 m. Find the height of the tank.

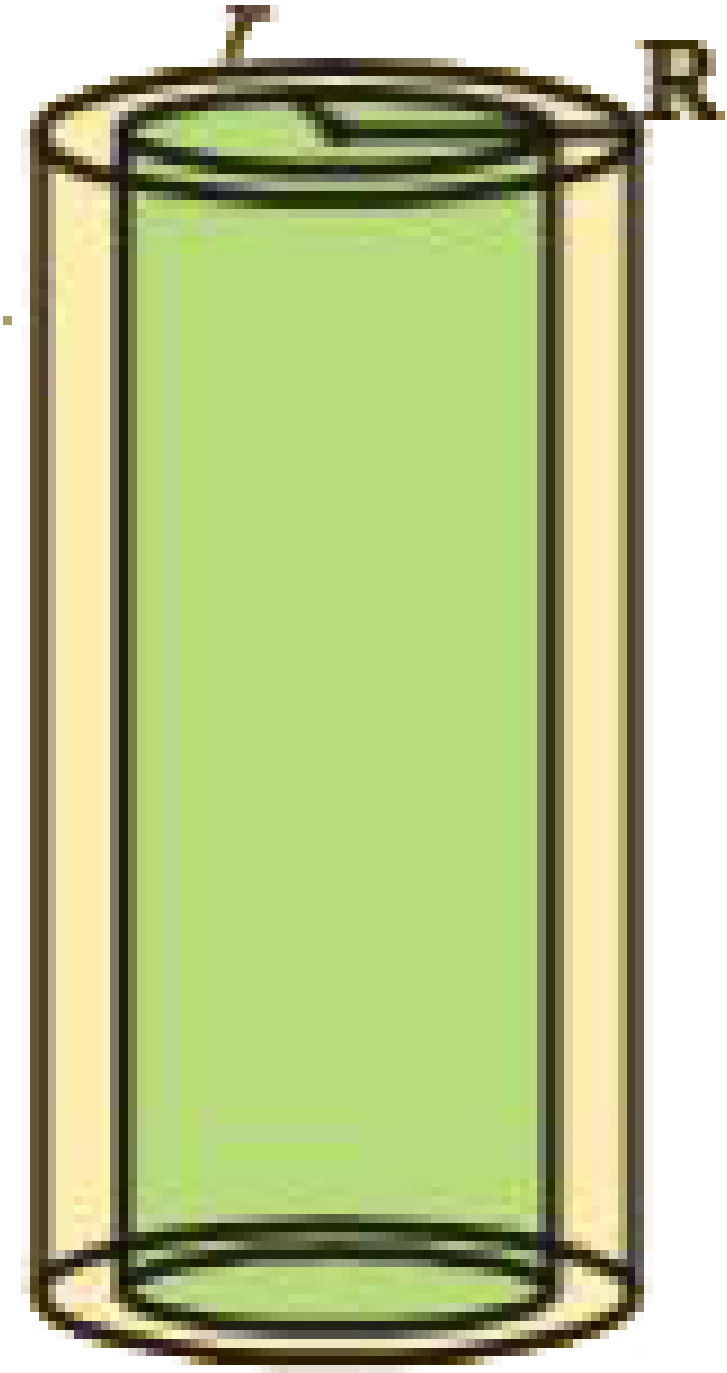
Watch Video Solution

5. 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

outer curved surface area

Total surface area.


R

Watch Video Solution

6. A cylindrical piller has a diameter of 56 cm and is of 35 m high. There are 16 pillars around the building. Find the cost of painting the curved surface area of all the pillars at the rate of rupees 5.50 per $1m^2$

Watch Video Solution

7. The diameter of a roller is 84 cm and its length is 120 cm . It takes 500 complete

revolutions to roll once over the play ground to level. Find the area of the play ground in m^2

Watch Video Solution

8. The inner diameter of a circular well is 3.5 m. It is 10 m deep . Find

(i) its inner curved surface area

(ii) The cost of plastering this curved surface at the rate of Rs. $40 per m^2$

Watch Video Solution

9. Find

The total surface area of a closed cylindrical petrol storage tank whose diameter $4.2m$. and height 4.5 m.

 Watch Video Solution

10. A one side open cylinderical drum has inner radius 28 cm, and height 2.1 m .How much water you can store in the drum . Express in litres .(1 litre= 1000cc.)

Watch Video Solution

11. The curved surface area of the cylinder is $1760cm^2$. And its volume is $12320cm^3$ Find its height.

Watch Video Solution

Exercise 10 3

1. The base area of a cone is $38.5cm^2$ .Its volume is $77cm^3$ Find its height .

Watch Video Solution

2. The volume of a cone is $462m^3$. Its base radius is 7m. Find its height.

Watch Video Solution

3. Curved surface area of a cone is $308cm^2$ and its slant height is 14 cm Find.

radius of the base .

Watch Video Solution

4. The cost of painting the total surface area of a cone at 25 paise per cm^2 is rupes 176 .Find the volume of the cone ,If its slant height is 25 cm.

Watch Video Solution

5. From a circle of radius 15cm . A sector with angle 216° is cut out and its bounding radius are bent so as to form a cone . Find its volume.

Watch Video Solution

6. The height of a tent is 9m. Its base diameter is 24m. What is its slant height? Find the cost of canvas cloth required if it costs rupes 14 per sq.m.

Watch Video Solution

7. The curved surface area of a cone is $1159\frac{5}{7}cm^2$ .Area of its base is $254\frac{4}{7}cm^2$ Find its volume.

Watch Video Solution

8. A tent is cylindrical to a height of 4.8 m .and conical above it. The radius of the base is 4.5 m. and total height of the tent is 10.8 m . Find

the canvas required for the tent in square meters.

Watch Video Solution

9. What length of tarpaulin 3m wide be required to make a conical tent of height 8m and base radius 6m? Assume that extra length of material that will be required for stitching margins and wastage in cutting is approxmately 20 cm (use $\pi = 3.14$)

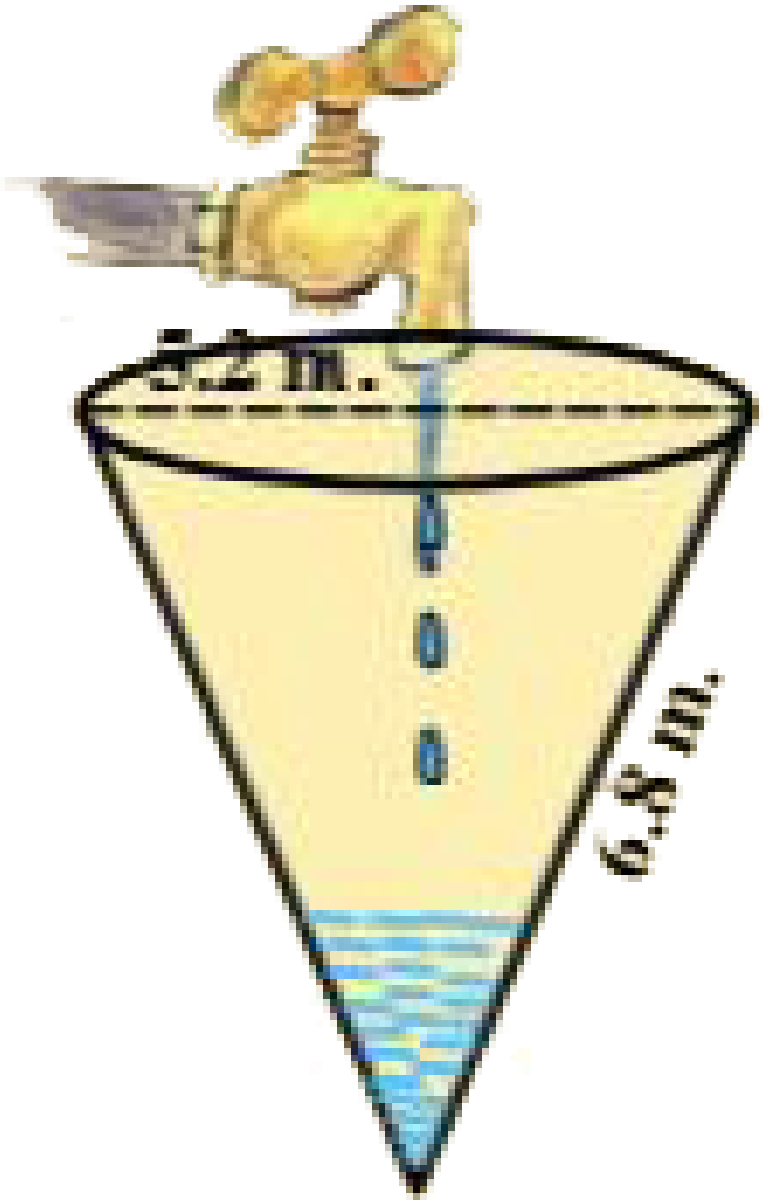
Watch Video Solution

10. A Joker's cap is in the form of a right circular cone of base radius 7cm and height 27 cm. Find the area of the sheet required to make 10 such caps.

Watch Video Solution

11. Water is pouring into a conical vessel of diameter 5.2m. And slant height 6.8 m(as shown in the adjoining) , at the rate of 1.8 m^3 per minute .How long will it take to fill the

vessel?



Watch Video Solution

12. Two similar cones have volumes 12π cu. Units and 96π cu. Units. If the curved surface area of the smaller cone is 15πsq. units ,What is the curved surface area of the larger one?

Watch Video Solution

Exercise 10 4

1. The radius of sphere is $3.5cm$ Find its surface area and volume .

Watch Video Solution

2. The surface area of sphere is $1018\frac{2}{7}$. Sq.cm . What is its volume?

Watch Video Solution

3. The length of equator of the globe is 44cm .

Find its surface area

Watch Video Solution

4. The diameter of a spherical ball is 21cm . How much leather is required to prepare 5 such balls.

Watch Video Solution

5. The ratio of radi of two sphere is 2: 3 Find the ratio of their volumes.

Watch Video Solution

6. Find the total surface area of a hemisphere of radius 10 cm . (use $\pi = 3.14$

Watch Video Solution

7. The diameter of a spherical balloon increases from 14cm . To 28 cm . As air is being pumped into it. Find the ratio of surface area to inner surface area of the balloons in the two cases.

Watch Video Solution

8. A hemispherical bowl is made of brass .0.25 cm. thickness .The inner radius of the bowl is

5cm. Find the ratio of outer surface area to inner surface area.

Watch Video Solution

9. The diameter of a lead ball is 2.1 cm The density of the lead used is $11.34g/c^3$ What is the weight of the ball ?

Watch Video Solution

10. A metallic cylinder of diameter 5cm. And height $3\frac{1}{3}cm$ is melted and cast into a sphere. What is its diameter.

Watch Video Solution

11. How many litres of milk can a hemispherical bowl of diameter 10.5 cm . Hold ?

Watch Video Solution

12. A hemispherical bowl has diameter 9 cm. The liquid is poured into cylindrical bottles of diameter 3 cm. and height 3 cm. If a full bowl of liquid is filled in the bottles. Find how many bottles are required.

Watch Video Solution