

Exercise VSAQs

Page No: 21.25

Question 1: Find the surface area of a sphere of radius 14 cm.**Solution:**Radius of a sphere (r) = 14 cmSurface area of a sphere = $4\pi r^2$

$$= 4 \times (22/7) \times 14^2 \text{ cm}^2$$

$$= 2464 \text{ cm}^2$$

Question 2: Find the total surface area of a hemisphere of radius 10 cm.**Solution:**Radius of a hemisphere (r) = 10 cmTotal surface area of a hemisphere = $3\pi r^2$

$$= 3 \times (22/7) \times 10^2 \text{ cm}^2$$

$$= 942 \text{ cm}^2$$

Question 3: Find the radius of a sphere whose surface area is 154 cm².**Solution:**Surface area of a sphere = 154 cm²We know, Surface area of a sphere = $4\pi r^2$

$$\text{So, } 4\pi r^2 = 154$$

$$4 \times 22/7 \times r^2 = 154$$

$$r^2 = 49/4$$

$$\text{or } r = 7/2 = 3.5$$

Radius of a sphere is 3.5 cm.

Question 4: The hollow sphere, in which the circus motor cyclist performs his stunts, has a diameter of 7 m. Find the area available to the motorcyclist for riding.

Solution:

Diameter of hollow sphere = 7 m

So, radius of hollow sphere = $7/2$ m = 3.5 cm

Now,

Area available to the motorcyclist for riding = Surface area of a sphere = $4\pi r^2$

$$= 4 \times (22/7) \times 3.5^2 \text{ m}^2$$

$$= 154 \text{ m}^2$$

Question 5: Find the volume of a sphere whose surface area is 154 cm^2 .

Solution:

Surface area of a sphere = 154 cm^2

We know, Surface area of a sphere = $4\pi r^2$

$$\text{So, } 4\pi r^2 = 154$$

$$4 \times 22/7 \times r^2 = 154$$

$$\text{or } r^2 = 49/4$$

$$\text{or } r = 7/2 = 3.5$$

Radius (r) = 3.5 cm

Now,

Volume of sphere = $4/3 \pi r^3$

$$= (4/3) \pi \times 3.5^3$$

$$= 179.66$$

Therefore, Volume of sphere is 179.66 cm^3 .