

Ex:- 13.4

1) Find the surface area of sphere of Radius:

i) 10.5 cm

$$\text{Area of Sphere} = 4\pi r^2$$

$$= \frac{4 \times 22 \times 10.5 \times 10.5}{7}$$

$$= \frac{4 \times 22 \times \overset{15}{\cancel{105}} \times \frac{105}{10}}{7}$$

$$= \frac{13860}{10} = 1386 \text{ cm}^2$$

ii) 5.6 cm

$$A = 4\pi r^2$$

$$= \frac{4 \times 22 \times (5.6)^2}{7}$$

$$= \frac{4 \times 22 \times \overset{8}{\cancel{56}} \times \frac{56}{10}}{7}$$

$$= \frac{\cancel{392} 39424}{100} = 394.24 \text{ cm}^2$$

iii) 14 cm

$$A = 4\pi r^2$$

$$= \frac{4 \times 22 \times 14^2}{7}$$

$$= \frac{4 \times 22 \times \overset{2}{\cancel{14}} \times 14}{7}$$

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

2) Find the surface Area of Sphere of Diameter:

i) 14 cm

Area of ^{sphere} ~~diameter~~

$$= \pi d^2 = 7 \text{ cm} \times \frac{14^2}{7}$$

$$\begin{aligned} \text{SAS} &= 4\pi r^2 \\ &= \frac{4 \times 22 \times 7 \times 7}{7} \\ &= 616 \text{ cm}^2 \end{aligned}$$

ii) 21 cm

$$r = \frac{d}{2} = \frac{21}{2} = 10.5 \text{ cm}$$

$$\begin{aligned} A &= \frac{4 \times 22 \times \frac{105}{10} \times \frac{105}{10}}{7} \\ &= \frac{138600}{100} = 1386 \text{ cm}^2 \end{aligned}$$

iii)

3.5 cm

$$r = \frac{d}{2} = \frac{3.5}{2} = 1.75 \text{ cm}$$

$$\begin{aligned} A &= 4\pi r^2 \\ &= \frac{4 \times 22 \times 1.75 \times 1.75}{7} \\ &= \frac{4 \times 22 \times \frac{175}{100} \times \frac{175}{100}}{7} \\ &= \frac{38500}{10000} \\ &= 3.85 \text{ cm}^2 \end{aligned}$$

3. Find total S.A of hemisphere of radius 10 cm

$$r = 10 \text{ cm}$$

$$\begin{aligned} \text{TSA of hemisphere} &= 3\pi r^2 \\ &= 3 \times 3.14 \times (10 \times 10) \\ &= 3 \times 314 \\ &= 942 \text{ cm}^2 \end{aligned}$$

4> The Radius of a Spherical balloon increases from 7cm to 14cm as air is being pumped. Find ratio of surface area of balloon in two cases.
 let r_1 be smaller balloon = 7cm
 r_2 " larger " = 14cm

SA of Sphere = $4\pi r^2$

Ratio = $\frac{\text{surface area of smaller balloon}}{\text{large "}}$

$$= \frac{4\pi r_1^2}{4\pi r_2^2} = \frac{r_1^2}{r_2^2}$$

$$= \frac{7^2}{14^2} = \frac{7 \times 7}{14 \times 14}$$

$$= \frac{1}{4} = 1:4$$