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NCERT Class 9 Solutions: Surface Areas and Volumes (Chapter 13) Exercise 13.4 – Part 1

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Q-1 . Find the surface area of a sphere of radius:

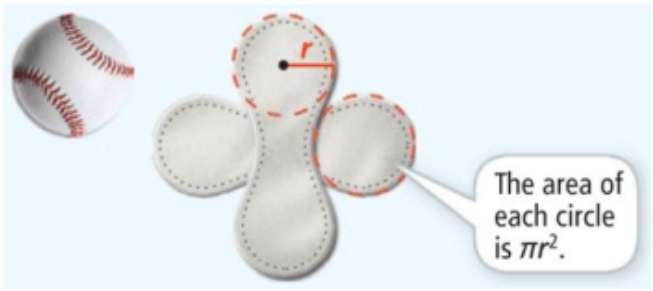
1. $10.5\ cm$
2. $5.6\ cm$
3. $14\ cm$

Solution:

The surface area of a sphere is four times the product of π and the square of the radius.

$SA = 4\pi r^2$

To understand this formula, think about a baseball covering.



1. Radius of the sphere (r) $= 10.5\ cm$

Surface area

- $4\pi r^2$
- $\left(4 \times \frac{22}{7} \times 10.5 \times 10.5\right) cm^2$
- $1386 cm^2$
- Radius of the sphere (r) $= 5.6\ cm.$, Surface area
- $4\pi r^2$
- $\left(4 \times \frac{22}{7} \times 5.6 \times 5.6\right) cm^2$
- $394.24 cm^2$
- Radius of the sphere (r) $= 14\ cm$, Surface area

- $4\pi r^2$
- $\left(4 \times \frac{22}{7} \times 14 \times 14\right) cm^2$
- $2464 cm^2$

Q-2 Find the surface area of a sphere of diameter:

1. $14\ cm$
2. $21\ cm$
3. $3.5m$

Solution:

1. $r = \frac{14}{2} cm = 7cm$ ($\because$ radius $= \frac{\text{diameter}}{2}$) , Surface area
2. $4\pi r^2$
3. $\left(4 \times \frac{22}{7} \times 7 \times 7\right) cm^2$
4. $616 cm^2$
5. $r = \frac{21}{2} cm = 10.5\ cm$ ($\because$ radius $= \frac{\text{diameter}}{2}$) , Surface area
6. $4\pi r^2$
7. $\left(4 \times \frac{22}{7} \times 10.5 \times 10.5\right) cm^2$
8. $1386\ cm^{\ 2}$
9. $r = \frac{3.5}{2} m = 1.75m$ ($\because$ radius $= \frac{\text{diameter}}{2}$) , Surface area
10. $4\pi r^2$
11. $\left(4 \times \frac{22}{7} \times 1.75 \times 1.75\right) m^2$
12. $38.5 m^2$