

CHAPTER-11 | : Surface Areas and Volumes

QUIZ
PART-12

1. If the radius of a sphere is halved, the ratio of the volume of the original sphere and the new sphere is:

- A. 4:1
B. 1:4
C. 6:1
D. 8:1 (D)

Explanation: The volume of a sphere is proportional to r^3 . Halving the radius reduces the volume by a factor of 8, so the ratio is 8:1.

2. What is the ratio of the volume of a sphere and a hemisphere of the same radius?

- A. 1:2
B. 2:1
C. 3:2
D. 2:3 (B)

Explanation: The volume of a sphere is twice that of a hemisphere with the same radius.

3. If the radius of a sphere is $2r$, its volume will be:

- A. $\frac{4}{3}\pi r^3$
B. $4\pi r^3$
C. $\frac{8}{3}\pi r^3$
D. $\frac{32}{3}\pi r^3$ (C)

Explanation: If the radius is doubled, the volume increases by a factor of 2^3 giving $\frac{8}{3}\pi r^3$

4. The volume of a sphere is given by:

- A. $\frac{4}{3}\pi r^3$
B. $\pi r^2 h$
C. $2\pi r^2 h$
D. $3\pi r^2 h$ (A)

Explanation: The formula for the volume of a sphere is $\frac{4}{3}\pi r^3$

5. The volume of a hemisphere with radius 7 cm is

- A. $\frac{1}{3}\pi r^3$
B. πr^3
C. $\frac{2}{3}\pi r^3$
D. $\frac{4}{3}\pi r^3$ (C)

Explanation: The volume of a hemisphere is $\frac{2}{3}\pi r^3$

6. The volume of a hemisphere is half of the volume of a sphere because:

- A. It is made from the same material
B. It has a flat circular base
C. It only has half the radius
D. It is half of the total volume of the sphere (D)

Explanation: The volume of a hemisphere is exactly half of the volume of a full sphere.

7. The volume of a sphere with radius 10 cm is:

- A. 4188 cm^3
B. 4200 cm^3
C. 4368 cm^3
D. 3600 cm^3 (A)

Explanation: Using the formula $\frac{4}{3}\pi r^3$, the volume is 4188 cm^3 .

8. The volume of a sphere with a radius of 4.5 cm is:

- A. 305.5 cm^3
B. 349.5 cm^3
C. 384.5 cm^3
D. 441.5 cm^3 (B)

Explanation: Volume = $\frac{4}{3}\pi r^3$, giving 349.5 cm^3 .

9. The ratio of the volumes of two spheres with radii in the ratio 2:3 is:

- A. 4:9
B. 9:16
C. 2:3
D. 8:27 (A)

Explanation: The volume ratio is the cube of the ratio of their radii, so the ratio is $2^3:3^3$ 8:27.

10. The volume of a cone is:

- A. $\pi r^2 h$
B. $\frac{1}{3}\pi r^2 h$
C. $\frac{2}{3}\pi r^3$
D. $\frac{4}{3}\pi r^2 h$ (B)

Explanation: The volume of a cone is $\frac{1}{3}\pi r^2 h$.