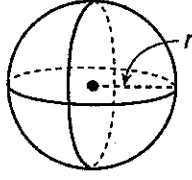


Spheres

To find the volume of a sphere, use the following formula.

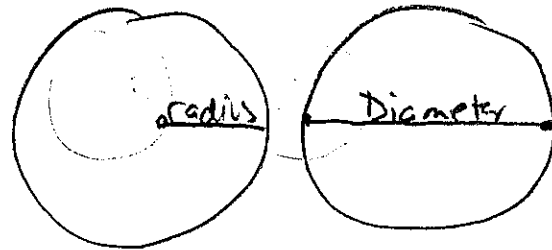
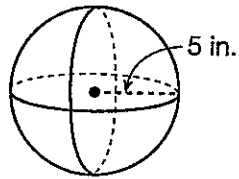
Sphere



$V = \frac{4}{3}\pi r^3$ where $r = \text{radius}$
 $\pi \approx 3.14$

▶ Example

What is the volume of the sphere below?



Use the following formula.

$$\begin{aligned}
 V &= \frac{4}{3}\pi r^3 \\
 &= \frac{4}{3} \cdot 3.14 \cdot (5)^3 \\
 &= \frac{4}{3} \cdot 3.14 \cdot 125 \\
 &= 523.\bar{3}
 \end{aligned}$$

The volume of the sphere is approximately 523.3 in.³.

★ If I am given the diameter I divide it by 2.

$$R = \frac{D}{2}$$

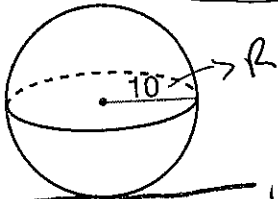
Examples

$$V = \frac{4}{3} \pi r^3$$

Use π - button when they don't tell you what to use for π

Find the volume
Round to the nearest tenth.

1)



$$V \approx 4188.8 \text{ u}^3$$

$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot \pi \cdot (10)^3$$

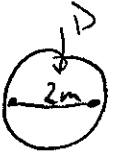
$$V = \frac{4}{3} \cdot \pi \cdot 1000$$

$$V = 4188.8 \text{ u}^3$$

P
E
M/D
A/S

2)

A sphere has a diameter of 2 m.
What is the volume of the sphere?
Use 3.14 for π and round your
answer to the nearest tenth.



$$V = 4.2 \text{ m}^3$$

$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot (3.14) \cdot (1)^3$$

$$V = \frac{4}{3} \cdot (3.14) \cdot 1$$

$$V = 4.2 \text{ m}^3$$

$$R = \frac{D}{2}$$

$$R = \frac{2}{2}$$

$$R = 1$$

3)

What is the volume of a beach ball
with a radius of 12 centimeters?

$$V = 7238.229474 \text{ cm}^3$$

$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot \pi \cdot (12)^3$$

$$V = \frac{4}{3} \cdot \pi \cdot 1728$$

$$V = 7238.229474 \text{ cm}^3$$

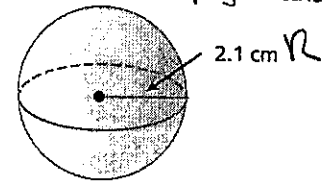


Don't
round
write every #

4)

Find the volume. Keep your answer in terms
of π .

Symbol



$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot \pi \cdot (2.1)^3$$

$$V = \frac{4}{3} \cdot \pi \cdot 9.261$$

$$V = 12,348 \pi \text{ cm}^3$$

Don't
multiply
by π !

5)

A baseball has a diameter of 2.9 inches. Find the volume of the baseball.
Round your answer to the nearest tenth if necessary. Use 3.14 for π .

$$R = \frac{D}{2}$$

$$R = \frac{2.9}{2}$$

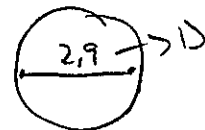
$$r = 1.45$$

$$V = \frac{4}{3} \pi r^3$$

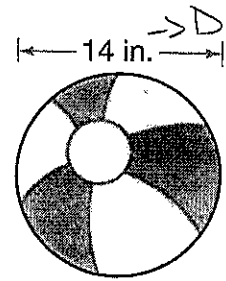
$$V = \frac{4}{3} \cdot (3.14) \cdot (1.45)^3$$

$$V = \frac{4}{3} \cdot (3.14) \cdot 3.048625$$

$$V = 12.8 \text{ in}^3$$



- 6) A beach ball has a diameter of 14 inches. If the beach ball is fully inflated, about how many cubic inches of air will it hold?



$$R = \frac{D}{2}$$

$$R = \frac{14}{2}$$

$$R = 7$$

$$V = \frac{4}{3} \pi r^3$$

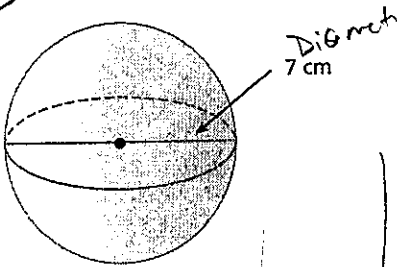
$$V = \frac{4}{3} \cdot \pi \cdot (7)^3$$

$$V = \frac{4}{3} \cdot \pi \cdot 343$$

$$V = 1436.75504 \text{ in}^3$$

Don't round
write every #

- 7) Find the volume to the nearest tenth



$$R = \frac{D}{2}$$

$$R = \frac{7}{2}$$

$$R = 3.5$$

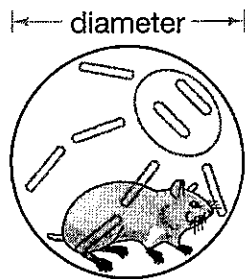
$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot \pi \cdot (3.5)^3$$

$$V = \frac{4}{3} \cdot \pi \cdot 42.875$$

$$V = 179.6 \text{ cm}^3$$

- 8) Erika bought a plastic run-around ball for her guinea pig.



If the volume of the ball is 288π cubic inches, what is the diameter of the ball?

$$V = \frac{4}{3} \pi r^3$$

$$\frac{288\pi}{\frac{4}{3}\pi} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$$

$$\sqrt[3]{16} = \sqrt[3]{r^3}$$

$$r = 6$$

$$6 \times 2 = 12$$

$$D = 12 \text{ inches}$$

11

12