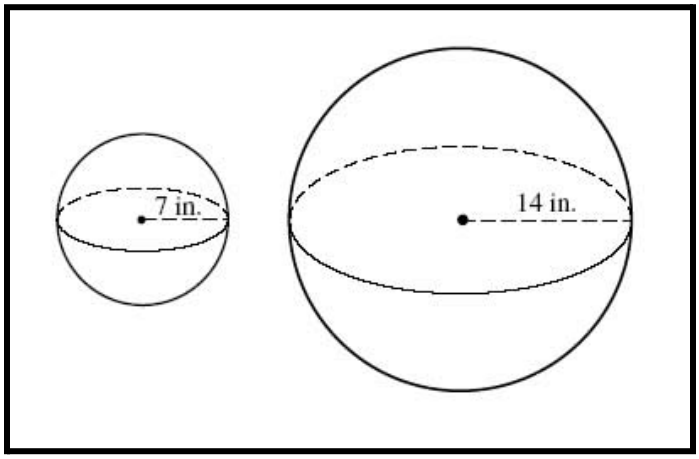
Topic: Volume of a sphere

Problem:

Which of the following is closest to the positive difference in the volumes of the two spheres represented by the drawings below?
(insert below image)



Select one:

A. 10,052 cu. in.
B. 2,401 cu. in.
C. 12,924 cu. in.
D. 25,170 cu. in.

Final Answer:

A. 10,052 cu. in.

Scaffolds (4 Total):

Scaffold 1/ 4

We must determine the volumes of both spheres and then subtract in order to find the difference in the volumes. What is the formula for the volume of a sphere of radius r?

A. $(\frac{1}{3})\pi r^2 h$

B. $(\frac{4}{3})\pi r^3$

C. $\pi r^2 h$

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

Hint (1 Total):

Hint 1 / 1

You can look at your reference sheet to find this formula.

Scaffold Answer 1 / 4:

(4/3)πr3

Scaffold 2 / 4:

Good. How many cubic inches is the volume of the sphere of radius 7 inches? Round to the nearest integer (using 3.14 for Π).

Hints (2 Total):

Hint 1 / 2

The volume will be equal to $\frac{4 * \pi * 73}{3}$. Use the value 3.14 for π

Hint 2 / 2

Please review the steps of the calculation.

$$\frac{4\times\Pi\times7^3}{3}=\frac{4\times3.14\times343}{3}=\frac{4308.08}{3}\approx1436$$

(insert above image)

Scaffold Answer 2 / 4:

1436

Scaffold 3 / 4:

Good. How many cubic inches is the volume of the sphere of radius 14 inches? Round to the nearest integer.

Hints (2 Total):

Hint 1 / 2

The volume will be equal to $\frac{4 * \pi * 73}{3}$. Use the value 3.14 for π

Hint 2 / 2

Please review the steps of the calculation.
(insert below image)

$$\frac{4 \times \Pi \times 14^3}{3} = \frac{4 \times 3.14 \times 2744}{3} = \frac{34464.64}{3} \approx 11488$$

Scaffold Answer 3 / 4:

11488

Scaffold 4 / 4:

Great. Which of the following is closest to the positive difference in the volumes of the two spheres represented by the drawings above?

A. 2,401 cu. in.
B. 12,924 cu. in.
C. 10,052 cu. in.
D. 21,170 cu. in.

Hints (2 Total):

Hint 1 / 2

You must subtract the values for the volumes of the 2 spheres found above to find the difference.

Hint 2 / 2

11,488 - 1,436 = 10,052.