

Lesson 2-6: Volume of Spheres

Learning Goal: (#12) How do I find the volume of a sphere?

From your video last night...

Volume of Spheres

The volume of a sphere can be found using the following formula:

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

**Error Analysis!** What mistake(s) did the student make below? Correct the error!**Example 1:** What is the volume, in terms of Pi, of a sphere with a radius of 5 inches?

$$\begin{aligned} V &= \left(\frac{4}{3}\right)\pi(5)^3 \\ &= 523.5987756 \\ &= \boxed{523.60 \text{ in}^3} \end{aligned}$$

**Your Turn!****Example 2:** If a sphere has a radius of 12 centimeters, what is the volume, to the nearest tenth of a cubic inch?**Example 3:** The diameter of the sphere is 4.6cm. Find volume of a sphere to the nearest cubic centimeter.

Example 4: Sketch a sphere with a diameter of 3 ft.

a) Find the volume of the sphere *in terms of π* .

b) Find the surface area *in terms of π* .

Example 5: When you blow up a balloon it forms a sphere because it is trying to hold as much air as possible with as small a surface as possible. How much air, to the nearest tenth of a cubic inch, is being held by a spherical balloon with a diameter of 12 inches?

Example 6: If the surface area of a sphere is represented by 144π , what is the volume in terms of π ?

HINT!! You need the radius first!
Use SA to solve for r , then find the volume!

Example 8: Use the hemisphere to the right to answer these questions. Round to nearest whole centimeter.

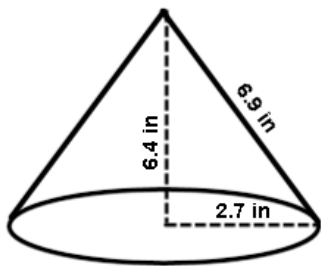
a) Calculate the volume:

b) Calculate the surface area:



Example 9:

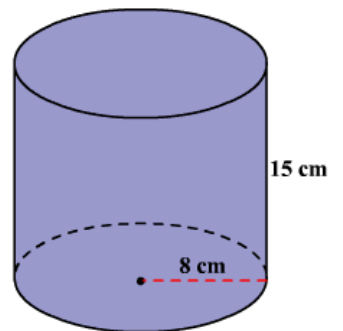
a) Calculate the volume of the solid below to the nearest 100th:



Example 7:

a) Find the surface area. Leave your answer in terms of Pi.

b) Calculate the volume. Leave your answer in terms of Pi.

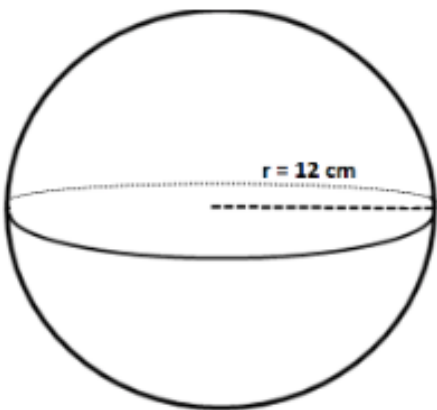


Lesson 2-6: Homework

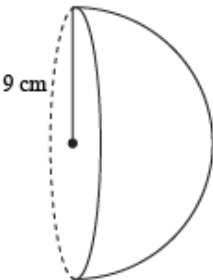
1. What is the difference between Surface Area and Volume?

Homework Scale	
Score	Description
3	(must complete all components to earn score)
	• Homework Complete
	• Use different color to check work
	• Mark correct answers with check mark ✓
2.5	• For incorrect answers, circle specific mistakes
	• Incorrect answers should have thorough corrections
2	• Corrections made but not in a different color
	• Homework complete
1.5	• Marked answers right/wrong, but no corrections made
	• Completed but not checked
1	• Homework Incomplete
0	• Homework missing/no effort or attempt

2. Calculate the volume of the following figure *to the nearest cubic centimeter*:

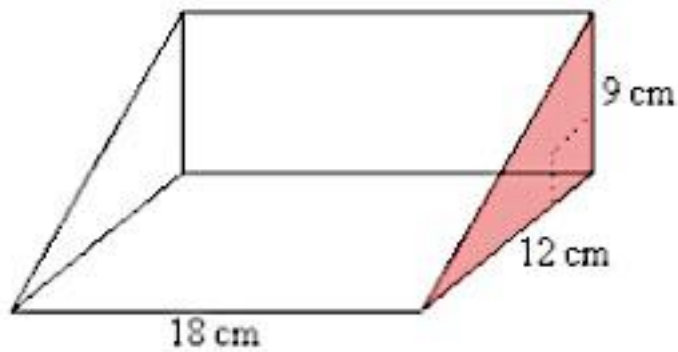


3. Calculate the volume of the following figure *in terms of Pi*:



4.

a) What is the name of the following figure? _____



b) What *shape* is the “base” of this figure? _____

c) What is the volume of the figure above?