

PRACTICE: LESSON 8.2 – VOLUME w/ WORD PROBLEMS

Name: _____

Learning Goal: I can solve word problems involving the **volume** of a cylinder, cone, and sphere.

Meta de Aprendizaje: *Puedo resolver problemas de palabras relacionados con el **volumen** de un cilindro, cono y esfera.*

Language Goal: I can discuss with a partner how to calculate the **Area of the Base, B**, and write an explanation.

Lenguaje Objetivo: *Puedo discutir con un compañero cómo calcular el **Área de la Base, B**, y escribir una explicación.*

VOLUME & SURFACE AREA WORD PROBLEM HINTS

1. Is this a **volume** or **surface area** problem? **How do you know?**
2. What are you solving for: **V, TSA, LSA, B, or h?**
3. Are there any numbers or words trying to **trick** us?
4. Is there another step, like to **add, subtract, multiply, or divide?** **How do you know?**

VOLUME STEPS:

- Step 1: Write the **Volume** Formula in a T-Chart
- Step 2: Replace "**B**", if needed, w/ the correct **Area** Formula
- Step 3: Replace the variables with your numbers
*(Be sure to use the **radius**, not the **diameter**!)*
- Step 4: Use your calculator to find the **Volume**

1. How do you calculate **B**, the **Area of the Base**, for a cylinder or cone? _____

2. A storage container for oil is in the shape of a **cylinder** with a **diameter** of 10 ft and a height of 17 ft. Which measurement is closest to the **volume** of the storage container in **cubic feet**?

- F 534 ft³
- G 1,335 ft³
- H 691 ft³
- J 1,696 ft³

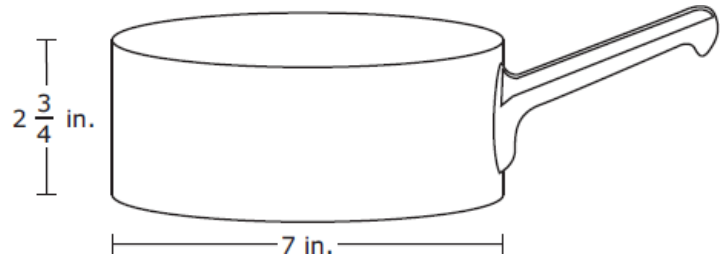
3. A paper drinking cup in the shape of a **cone** has a height of 10 centimeters and a **diameter** of 8 centimeters. Which of the following is closest to the **volume** of the cup in **cubic centimeters**?

- F 167 cm³
- G 209 cm³
- H 670 cm³
- J 502 cm³

4. A ball shaped like a **sphere** has a **radius** of approximately $2\frac{1}{8}$ inches. Which of the following is the best estimate of the **volume** of the ball?

- F 32 in.³
- G 11 in.³
- H 25 in.³
- J 17 in.³

5. A **cylindrical** pan has the dimensions shown below.



A formula for the **volume** of a cylinder is $V = Bh$. Which equation best represents **B**, the **area of the base**, of this pan in square inches?

- A. $B = \pi(3\frac{1}{2})^2$
- B. $B = \pi(7)^2$
- C. $B = 2\pi(7)$
- D. $B = \pi(2\frac{3}{4})(14)$

6. Jennifer must fill a **cylindrical** container with a solution for a science lab activity. The container is 6 inches tall and has a diameter of 2 inches. What is the approximate amount of solution Jennifer can put in the container?

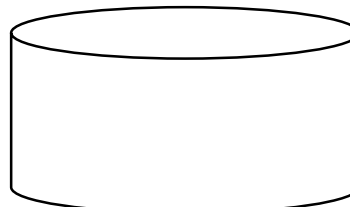
- A 12.00 inches³
- B 18.84 inches³
- C 37.68 inches³
- D 75.36 inches³

7. The **volume** of the can below is 791.28 cm³. If the **height** of the can is 7 cm, what is the **Area of the Base**?



B = _____

8. The **volume** of the cylinder below is 150 cm³. If the **Area of the Base** is 25 cm², what is the **height** of the cylinder?



h = _____

9. A beach ball has a radius of 3 centimeter s. What is the approximate amount of air in the ball?

- A 12.56 cm^3
- B 37.68 cm^3
- C 84.78 cm^3
- D 113.04 cm^3

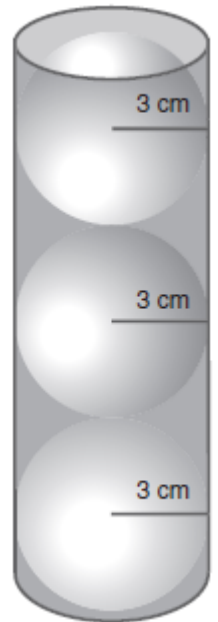
10. A can holds 3 tennis balls as shown in the figure. The radius of each tennis ball is 3 centimeters.

What is the volume of one tennis ball?

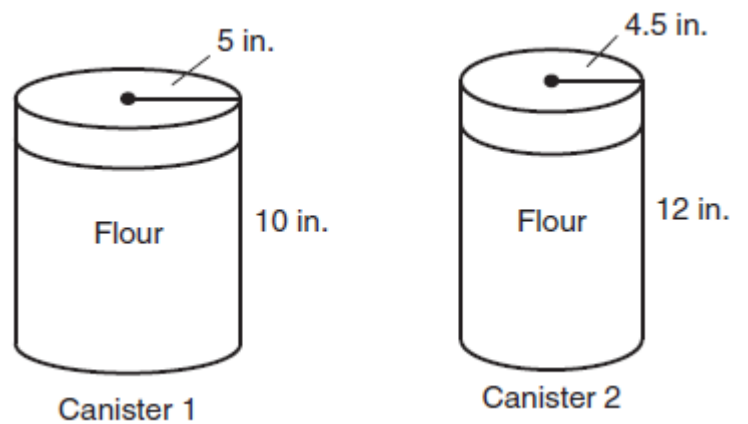
ANSWER: _____

What is the total volume of all 3 tennis balls?

ANSWER: _____



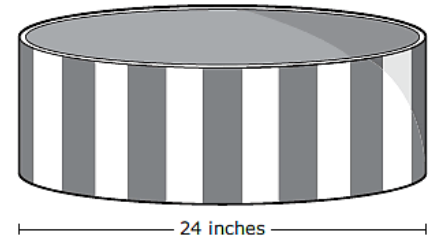
11. Which container can hold more flour, Canister 1 or Canister 2? **How much more** flour can the larger canister hold?



ANSWER: _____

12. A hatbox in the shape of a cylinder is modeled below. The diameter of the cylinder is 24 inches. The height of the cylinder is 8 inches.

The **volume** of a cylinder can be found by using the formula $V = Bh$. Which expression can be used to determine **B**, the **area of the base**, of this hatbox in square inches?



- F. $(24)^2\pi$
- G. $(12)^2\pi$
- H. $8^2 \cdot 12$
- J. $12^2 \cdot 8$
13. Mr. Myers and Mr. Holyoke need to pump up 20 brand new soccer balls for practice. Each ball has a diameter of 12 inches. How much air will it take **to fill up all 20 soccer balls**?



ANSWER: _____

14. Alejandra is filling a cylindrical tank with gasoline at a rate of 20 cubic feet per minute. The radius of the tank is 10 feet and the height is 8 feet. **How many minutes** will it take to fill the tank to the top?

Part 1: Find the **volume**.

ANSWER: _____

Part 2: How long will it take to fill the tank at the rate 20 cubic feet per minute?

ANSWER: _____

15. A silo shaped like a cylinder is 12 feet in diameter and 30 feet high. The silo is filled with corn only **halfway** of the height of the silo. How much corn is in the silo?



ANSWER: _____