Name_____   Date_____   Period_____

Surface Area and Volume Test

Review

(On each question write the formula/s used to solve the question)

1. Juanita covered the outside of a gift box shaped like a rectangular prism with paper. The box is 5.3 feet long, 2.5 feet wide, and 6.2 feet high. What is the total surface area of this box?

2. Yadira made a wooden cone with a radius of 2.8 inches and a height of 23 inches. What is the volume of this cone rounded to the nearest cubic inch?

**3.** A food company is going to make a label for its can.

5 cm

12 cm
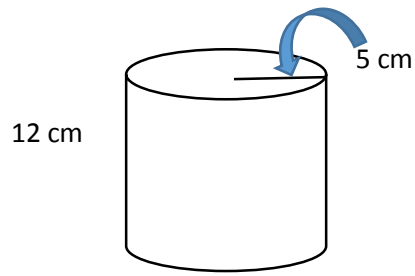
The label will exactly cover the side, but not the top or bottom of the can. **What is the area of the label be in terms of ?**

4. A cone is cut out of a cylinder, as shown below. The height of the cone is $\frac{1}{2}$ of the height of the cylinder. What is the volume of the remaining solid rounded to the nearest cubic inch?

6 in

8 in
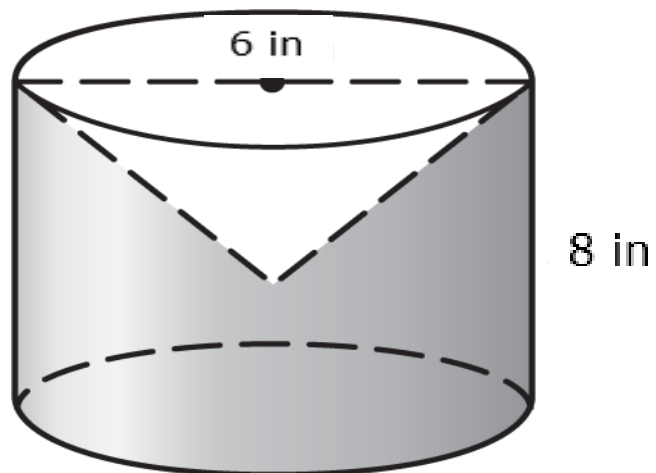
5. A cylindrical glass vase is 8 inches in diameter and 20 inches high. There are 5 inches of sand in the vase, as shown below.
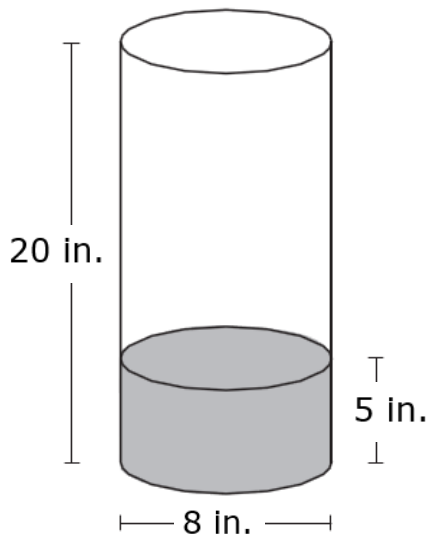
Which of the following equations should you use to find the volume of the sand in the vase?
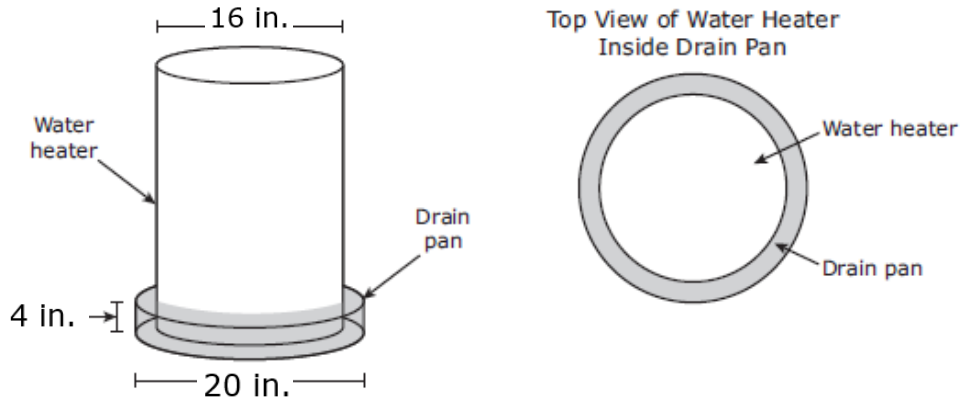
A $V = \pi \cdot 4^2 \cdot 12$

B $V = \pi \cdot 8^2 \cdot 12$

**C** $V = \pi \cdot 4^2 \cdot 5$

D $V = \pi \cdot 8^2 \cdot 5$

6. Gary wrapped a cube-shaped gift box with wrapping paper. The box was 9 inches long. What was the minimum amount of paper Gary could have used to cover the box?

7. A water heater has a diameter of 16 inches. It sits in a drain pan that has a diameter of 20 inches and a height of 4 inches, as modeled in the diagram below.


Water that leaks out of the water heater sits in the drain pan.   How much water could the drain pan can contain with the water heater in the position as shown? Round to the nearest cubic inch.

8. Jo Ivy is playing with a rubber ball. The dimensions of the ball are shown below. What is the approximate volume of the ball Jo Ivy is playing with?
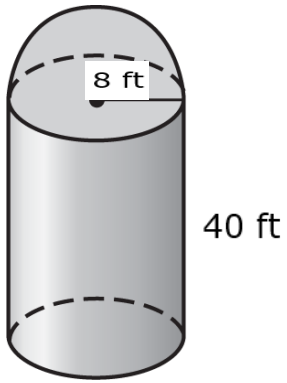

12 in.
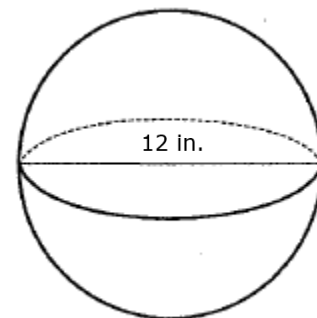
9. The drawing shown below of a cylindrical tank is scaled at a tank to drawing ratio Of 5 to 1. What is the volume of the actual cylindrical tank in cubic inches **in terms of** π.
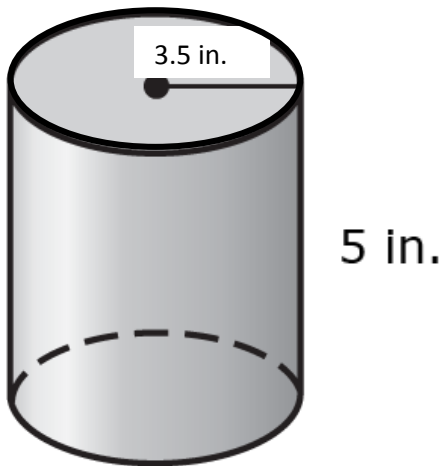

4 in.

12 in.
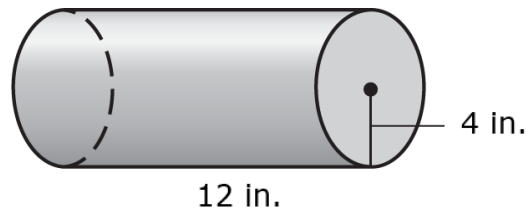
10. What is the volume of a cylinder that has the same base and height dimensions as the cone shown below?


8 ft

6 ft
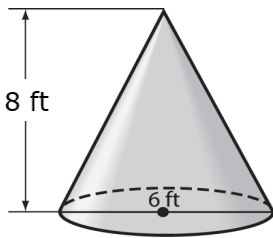
11. What is the approximate volume of the farmer's silo shown below?

8 ft

40 ft

12. Labeling paper covers the lateral area of a soup can like the one shown below. Approximately, how much labeling paper is needed for 12 soup cans?

3.5 in.

5 in.

13. Mia wants to make a canvas tent with the dimensions shown, including the floor. The ends of the tent are isosceles triangles. The canvas costs $1.40 per square foot. How much will Mia spend on canvas?

7 ft

7 ft

8 ft

6.5 ft

6 ft
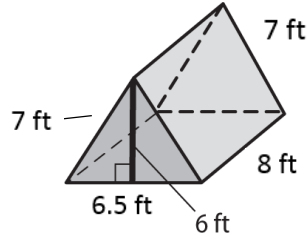
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

14. Marcy wants to paint the sides of the wooden storage chest shown below gray, and only the lid white. How much greater is the gray surface than the white surface?

18 in.

24 in.

36 in.
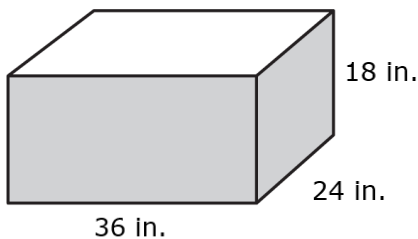
15. Ryan built a sled that was created out of an old oil drum. The oil drum is in the shape of cylinder. He cut the oil drum in half to create the sled. Ryan was asked to find the volume of his sled. Analyze Ryan's steps and circle the mistakes that he made. Then, solve the problem correctly.

2 ft.   8 ft.

Ryan's Steps

$$V = \frac{1}{2}Bh$$

$$V = \frac{1}{2}(\pi r^2)h$$

$$V = \frac{1}{2}(\pi \cdot 2) \cdot 8$$

$$V \approx 25.13 \ ft^3$$

Correct Steps

_____

_____

_____

_____

_____

_____

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