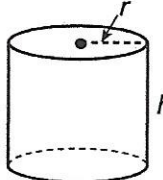


## Lesson 28: Volume

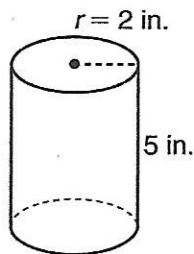
Volume ( $V$ ) is the amount of space a solid takes up. It is measured in cubic units.

### Cylinders

<p><b>Cylinder</b></p> 	$V = \pi r^2 h$	<p>where <math>r</math> = radius of the base  <math>h</math> = height  <math>\pi \approx 3.14</math></p>
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### ▶ Example

What is the volume of this cylinder?



Use the following formula.

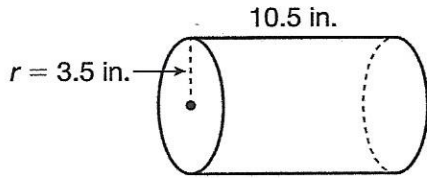
$$\begin{aligned}
 V &= \pi r^2 h \\
 &= 3.14 \cdot (2)^2 \cdot (5) \\
 &= 3.14 \cdot 4 \cdot 5 \\
 &= 62.8
 \end{aligned}$$

The volume of the cylinder is approximately  $62.8 \text{ in.}^3$ .

\* When you are given the diameter, you have to \_\_\_\_\_

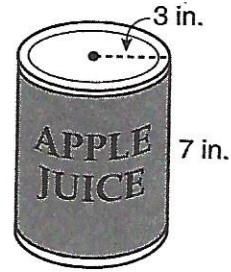
# Examples

- 1) What is the volume of this cylinder?  
Use 3.14 for  $\pi$ .



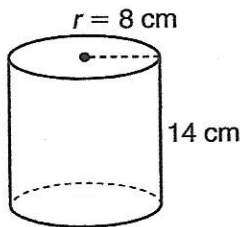
- A.  $192.325 \text{ in.}^3$
- B.  $307.72 \text{ in.}^3$
- C.  $403.8825 \text{ in.}^3$
- D.  $2307.9 \text{ in.}^3$

- 2) What is the volume of this container of apple juice?



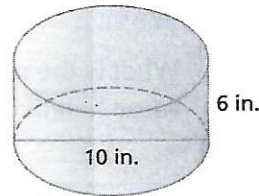
$V =$  \_\_\_\_\_

- 3) What is the volume of the following cylinder? Use 3.14 for  $\pi$  and round your answer to the nearest whole number.

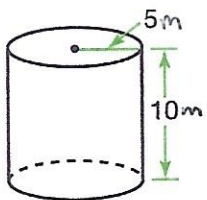


$V =$  \_\_\_\_\_

- 4) The top layer of a wedding cake has a diameter of 10 inches and a height of 6 inches. Find the volume of the top layer of the cake. Round your answer to the nearest tenth if necessary. Use 3.14 for  $\pi$ .

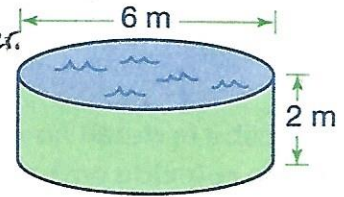


- 5) Find the volume:  
\* Round to the nearest tenth

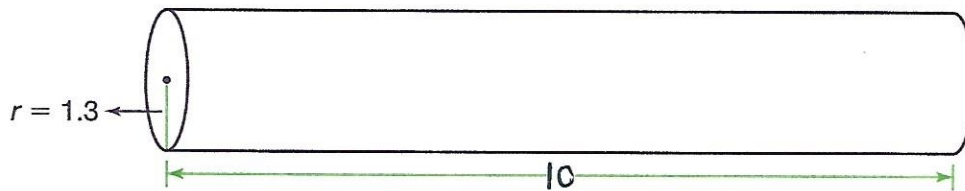


$V \approx$  \_\_\_\_\_

- 6) About how many cubic meters of water will this swimming pool hold if it is filled to capacity? Round to the nearest whole meter.

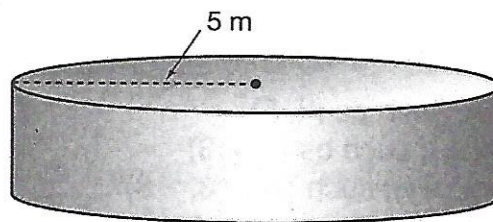


- 7) Find the volume of the following cylinder. Keep your answer in terms of  $\pi$ .



- 8) A cylindrical gas tank has a capacity of approximately  $157 \text{ m}^3$ . Its radius is 5 m.

Volume =  $157 \text{ m}^3$



What is the height of the cylindrical gas tank? \_\_\_\_\_

Explain how you found the height of the gas tank.

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