

Volume Builder Lab

Find the space inside prisms and cylinders.

GRADE 7 • 7.GSR.5.8

7.GSR.5.8 "Explore volume as a measurable attribute of cylinders and right prisms. Find the volume of these geometric figures using concrete problems."

NAME _____

DATE _____

VOLUME RULES

Volume measures how much space is inside a solid. For a right prism, use $V = B \times h$, where B is the area of the base. For a cylinder, the base is a circle, so use $V = \pi \times r \times r \times h$.

WORKED EXAMPLE

Find the volume of a rectangular prism with a length of 17 cm, a width of 16 cm, and a height of 19 cm.

1. Use $V = l \times w \times h$.
2. $V = 17 \times 16 \times 19$.
3. $17 \times 16 = 272$.
4. $272 \times 19 = 5,168$.

Answer: 5,168 cm³

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism that is 9 cm long, 5 cm wide, and 2 cm high.

ANSWER _____

- 2** Find the volume of a right rectangular prism with dimensions 12 cm by 3 cm by 7 cm.

ANSWER _____

- 3** A right triangular prism has a triangular base with a base of 10 cm and a triangle height of 8 cm. The prism height is 5 cm. Find the volume.

ANSWER _____

- 4** Find the volume of a cylinder with a radius of 4 cm and a height of 9 cm. Use $\pi = 3.14$.

ANSWER _____

- 5** Find the volume of a cylinder with a radius of 5 cm and a height of 12 cm. Use $\pi = 3.14$.

ANSWER _____

- 6** A right prism has a base area of 36 cm² and a height of 11 cm. Find the volume.

ANSWER _____

APPLY IT Show your work

- 1** A student designs a rectangular prize box for a school game night. The box is 18 cm long, 10 cm wide, and 6 cm high. What volume can the box hold?

WORK SPACE

ANSWER _____

- 2** A snack shop uses a cylindrical popcorn tub with a radius of 7 cm and a height of 20 cm. What is the volume of the tub? Use $\pi = \frac{22}{7}$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A cylinder has a volume of $1,256 \text{ cm}^3$ and a radius of 10 cm. What is its height? Use $\pi = 3.14$.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 9 cm long, 5 cm wide, and 2 cm high.	90 cm³
2	Find the volume of a right rectangular prism with dimensions 12 cm by 3 cm by 7 cm.	252 cm³
3	A right triangular prism has a triangular base with a base of 10 cm and a triangle height of 8 cm. The prism height is 5 cm. Find the volume.	200 cm³
4	Find the volume of a cylinder with a radius of 4 cm and a height of 9 cm. Use $\pi = 3.14$.	452.16 cm³
5	Find the volume of a cylinder with a radius of 5 cm and a height of 12 cm. Use $\pi = 3.14$.	942 cm³
6	A right prism has a base area of 36 cm ² and a height of 11 cm. Find the volume.	396 cm³

PART 2 • APPLY IT

- 1,080 cm³** Use $V = l \times w \times h$. Multiply $18 \times 10 \times 6$ to get 1,080.
- 3,080 cm³** Use $V = \pi \times r \times r \times h$. Substitute $22/7$ for π and multiply $(22/7) \times 7 \times 7 \times 20$.

CHALLENGE**4 cm**

Accept correct equivalent multiplication expressions and volume units written as cubic centimeters. Cylinder answers should use the stated value of π .