LESSON MAKER PRO

Cylinder Volume Lab

Find the space inside right circular cylinders.

GRADE 7 · MA.7.GR.2.3

MA.7.GR.2.3 "Solve mathematical and real-world problems involving volume of right circular cylinders."

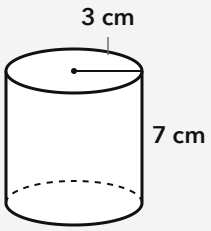
NAME _____ DATE _____

VOLUME OF A CYLINDER

For a right circular cylinder, use $V = \pi r^2 h$. Square the radius first, then multiply by π and the height. If you know the diameter, divide it by 2 to find the radius.

WORKED EXAMPLE

Find the volume of the cylinder shown.

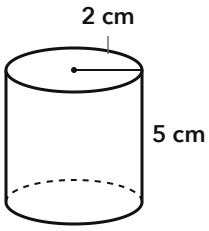


1. Use $V = \pi r^2 h$.
2. Substitute: $V = \pi(3)^2(7)$.
3. Multiply: $V = \pi(9)(7) = 63\pi$.

Answer: 63π cm^3

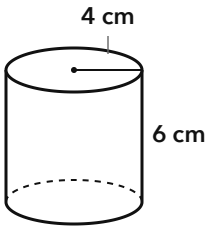
PRACTICE 6 problems

1 Find the volume of the cylinder shown.



ANSWER _____

2 Find the volume of the cylinder shown.



ANSWER _____

3 A cylinder has a diameter of 10 cm and a height of 8 cm. Find its volume.

ANSWER _____

4 A cylinder has a radius of 9 cm and a volume of 972π cm^3. Find its height.

ANSWER _____

5 Cylinder A has a radius of 1 cm and a height of 20 cm. Cylinder B has a radius of 2 cm and a height of 10 cm. Which cylinder has the greater volume? How much greater is it?

ANSWER _____

_____

6 A cylinder has a radius of 1/2 cm and a height of 16 cm. Find its volume.

ANSWER _____

APPLY IT Show your work

1 A student fills a cylindrical water bottle. The inside of the bottle has a radius of 5 cm and a height of 12 cm. What volume of water can the bottle hold when full?

WORK SPACE

ANSWER _____

2 The art club stores rolled posters in a cylindrical tube with an inside diameter of 8 cm and a height of 15 cm. What is the volume inside the tube?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A cylindrical speaker has a volume of 576π cm^3 and a height of 9 cm. Find the diameter of its circular base. Explain how the volume formula helps you find it.

WORK SPACE AND ANSWER

ANSWER KEY

Cylinder Volume Lab

GRADE 7 · MA.7.GR.2.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of the cylinder shown.	**20π cm^3**
2	Find the volume of the cylinder shown.	**96π cm^3**
3	A cylinder has a diameter of 10 cm and a height of 8 cm. Find its volume.	**200π cm^3**
4	A cylinder has a radius of 9 cm and a volume of 972π cm^3. Find its height.	**12 cm**
5	Cylinder A has a radius of 1 cm and a height of 20 cm. Cylinder B has a radius of 2 cm and a height of 10 cm. Which cylinder has the greater volume? How much greater is it?	**Cylinder B; 20π cm^3 greater**
6	A cylinder has a radius of 1/2 cm and a height of 16 cm. Find its volume.	**4π cm^3**

PART 2 · APPLY IT

1. **300π cm^3** Use $V = \pi r^2 h$. Compute $\pi(5)^2(12) = 300\pi$.
2. **240π cm^3** The radius is 4 cm because the diameter is 8 cm. Compute $V = \pi(4)^2(15) = 240\pi$.

CHALLENGE

16 cm; $576\pi = \pi r^2(9)$, so $r^2 = 64$ and $r = 8$ cm. The diameter is $2(8) = 16$ cm.

Accept equivalent exact forms, such as $\pi \cdot 300$, and require cubic units for volume answers. For the challenge, accept a correct explanation that finds radius 8 cm before doubling it to get the diameter.