LESSON MAKER PRO

Cylinder Volume Quest

Find the space inside right circular cylinders.

GRADE 7 · MA.7.GR.2

MA.7.GR.2 "Solve problems involving three-dimensional figures, including right circular cylinders."

NAME _____ DATE _____

VOLUME OF A CYLINDER

Use V = pi r^2 h to find the volume of a right circular cylinder. The radius is half the diameter, and keep pi in your answer unless you are told to estimate.

WORKED EXAMPLE

Find the volume of a right circular cylinder with radius 3 cm and height 5 cm.

1. Use V = pi r^2 h.
2. Substitute: V = pi(3)^2(5).
3. Square and multiply: V = pi(9)(5) = 45pi.

Answer: 45pi cubic cm

PRACTICE 6 problems

1 Find the volume of a right circular cylinder with radius 2 cm and height 7 cm.

ANSWER _____

2 A right circular cylinder has a diameter of 8 cm and a height of 4 cm. Find its volume.

ANSWER _____

3 A right circular cylinder has a volume of 432pi cubic cm and a radius of 6 cm. Find its height.

ANSWER _____

4 Find the volume of a right circular cylinder with radius 1 cm and height 9 cm.

ANSWER _____

5 Find the volume of a right circular cylinder with radius 10 cm and height 2 cm.

ANSWER _____

6 A right circular cylinder has a volume of 392pi cubic cm and a height of 8 cm. Find its radius.

ANSWER _____

APPLY IT Show your work

1 A reusable water bottle is shaped like a right circular cylinder. Its diameter is 14 cm and its height is 9 cm. What is its volume in terms of pi?

WORK SPACE

ANSWER _____

2 A game store packs dice in a cylindrical display tube with radius 4 cm and height 15 cm. What is the volume of the tube in terms of pi?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Cylinder A has a radius of 6 cm and a height of 8 cm. Cylinder B has a radius of 4 cm and a height of 18 cm. Do the cylinders hold the same amount? Explain using their volumes.

_____

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ANSWER KEY

Cylinder Volume Quest

GRADE 7 · MA.7.GR.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a right circular cylinder with radius 2 cm and height 7 cm.	**28pi cubic cm**
2	A right circular cylinder has a diameter of 8 cm and a height of 4 cm. Find its volume.	**64pi cubic cm**
3	A right circular cylinder has a volume of 432pi cubic cm and a radius of 6 cm. Find its height.	**12 cm**
4	Find the volume of a right circular cylinder with radius 1 cm and height 9 cm.	**9pi cubic cm**
5	Find the volume of a right circular cylinder with radius 10 cm and height 2 cm.	**200pi cubic cm**
6	A right circular cylinder has a volume of 392pi cubic cm and a height of 8 cm. Find its radius.	**7 cm**

PART 2 · APPLY IT

1. **441pi cubic cm** The radius is 7 cm. Use V = pi(7)^2(9) = 441pi.
2. **240pi cubic cm** Use V = pi(4)^2(15). This equals 240pi.

CHALLENGE

Yes. Cylinder A has volume 288pi cubic cm, and Cylinder B has volume 288pi cubic cm.

Accept equivalent exact forms, such as 28 x pi cubic cm. Students should use the radius, not the diameter, in the volume formula.