LESSON MAKER PRO

Space Inside Solids

Use base areas to find volume.

GRADE 7 · 7A.GM.B.41

7A.GM.B.41 "Use formulas to calculate the volumes of three-dimensional figures to solve real-world problems."

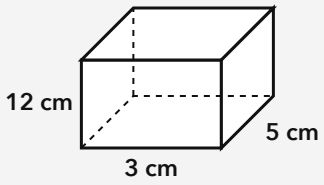
NAME _____ DATE _____

FIND THE BASE FIRST

Volume is the space inside a solid, measured in cubic units. For a prism or cylinder, V = B × height, where B is the area of a base. Use B = l × w for a rectangular base, B = b × h/2 for a triangular base, and B = πr^2 for a circular base. Use π = 22/7 on this sheet.

WORKED EXAMPLE

Find the volume of the rectangular prism shown.

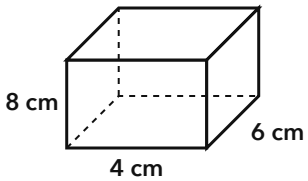


1. Find the base area: B = 3 × 5 = 15 cm^2.
2. Multiply by the prism's height: V = 15 × 12.
3. V = 180 cm^3.

Answer: 180 cm^3

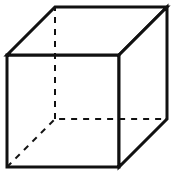
PRACTICE 6 problems

1 Find the volume of the rectangular prism shown.



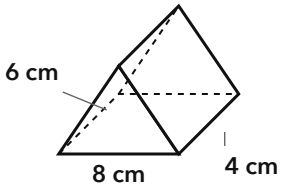
ANSWER _____

2 Find the volume of the cube shown.



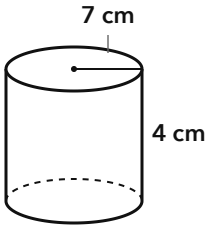
ANSWER _____

3 Find the volume of the triangular prism shown. The triangle's base is b, its height is h, and the prism's length is l.



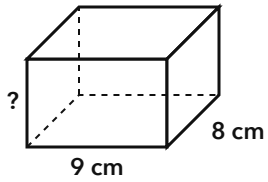
ANSWER _____

4 Find the volume of the cylinder shown. Use π = 22/7.



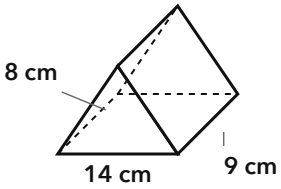
ANSWER _____

5 The rectangular prism shown has a volume of 288 cm^3. Find its missing height.



ANSWER _____

6 Find the volume of the triangular prism shown. The triangle's base is b, its height is h, and the prism's length is l.



ANSWER _____

APPLY IT Show your work

1 A club packs a mini drone in a rectangular box that is 9 cm long, 7 cm wide, and 4 cm high. How much space is inside the box?

WORK SPACE

ANSWER _____

2 At a school camp, a tent has a triangular end that is 4 m wide and 2 m tall. The tent is 8 m long. What is the volume of air inside the tent?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two rectangular tanks have the same volume. Tank A is 9 cm long, 8 cm wide, and 10 cm high. Tank B is 15 cm long and 6 cm wide. How tall is Tank B? Show your calculation.

WORK SPACE AND ANSWER

ANSWER KEY # Space Inside Solids

GRADE 7 · 7A.GM.B.41

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of the rectangular prism shown.	**192 cm³**
2	Find the volume of the cube shown.	**343 cm³**
3	Find the volume of the triangular prism shown. The triangle's base is b, its height is h, and the prism's length is l.	**96 cm³**
4	Find the volume of the cylinder shown. Use π = 22/7.	**616 cm³**
5	The rectangular prism shown has a volume of 288 cm^3. Find its missing height.	**4 cm**
6	Find the volume of the triangular prism shown. The triangle's base is b, its height is h, and the prism's length is l.	**504 cm³**

PART 2 · APPLY IT

1. **252 cm³** Multiply the three dimensions: 9 × 7 × 4 = 252 cm^3.
2. **32 m³** The triangular end has area 4 × 2/2 = 4 m^2. Multiply by the tent's length: 4 × 8 = 32 m^3.

CHALLENGE

8 cm; Tank A's volume is 9 × 8 × 10 = 720 cm³, so Tank B's height is 720/(15 × 6) = 8 cm.

Accept equivalent calculations with the correct units. For the tent, the triangular end is the base used to find the prism's volume.