LESSON MAKER PRO

Prism Space Quest

Find and compare the space inside rectangular prisms.

GRADE 6 · 6.GM.B.28.a

6.GM.B.28.a "Use models (cubes or drawings) and the volume formulas (V = lwh and V = Bh) to find and compare volumes of right rectangular prisms."

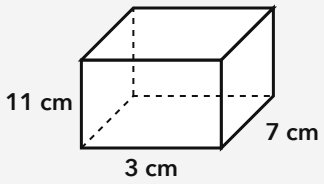
NAME _____ DATE _____

COUNT THE LAYERS

A right rectangular prism is like a stack of equal rectangular layers. Find the area of one layer with B = l × w, then multiply by the height: V = Bh = lwh. Write volume in cubic units.

WORKED EXAMPLE

Find the volume of the prism shown.

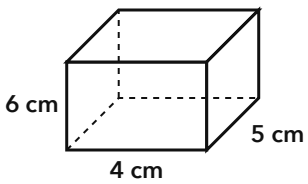


1. Find the base area: B = 3 × 7 = 21 cm^2.
2. Multiply by the height: V = Bh = 21 × 11.
3. V = 231 cm^3.

Answer: 231 cm^3

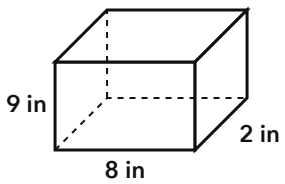
PRACTICE 6 problems

1 Find the volume of the prism shown.



ANSWER _____

2 Find the volume of the prism shown.



ANSWER _____

3 A prism has a base area of 36 cm^2 and a height of 8 cm. What is its volume?

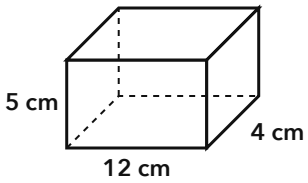
ANSWER _____

4 Prism A measures 10 cm by 4 cm by 6 cm. Prism B measures 8 cm by 5 cm by 6 cm. Find each volume. Which prism has more volume?

ANSWER _____

_____

5 How many 1 cm cubes would fill the prism shown with no gaps?



ANSWER _____

6 Prism A has a base area of 54 cm^2 and a height of 6 cm. Prism B has a base area of 40 cm^2 and a height of 8 cm. Which prism has more volume, and by how much?

ANSWER _____

_____

APPLY IT Show your work

1 Two boxes hold supplies for a school game club. Box A measures 14 in by 10 in by 5 in. Box B measures 12 in by 12 in by 5 in. Which box holds more, and how much more?

WORK SPACE

ANSWER _____

2 A class is planning a rectangular habitat for a pet. The inside measures 15 in long, 8 in wide, and 10 in high. What is the volume of the space inside?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two rectangular prisms are each 8 cm high. Prism A has a base that measures 9 cm by 6 cm. Prism B has a base that measures 12 cm by 5 cm. Which prism has more volume, and by how much? Explain using the base areas.

WORK SPACE AND ANSWER

ANSWER KEY

Prism Space Quest

GRADE 6 · 6.GM.B.28.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of the prism shown.	**120 cm^3**
2	Find the volume of the prism shown.	**144 in^3**
3	A prism has a base area of 36 cm^2 and a height of 8 cm. What is its volume?	**288 cm^3**
4	Prism A measures 10 cm by 4 cm by 6 cm. Prism B measures 8 cm by 5 cm by 6 cm. Find each volume. Which prism has more volume?	**A: 240 cm^3; B: 240 cm^3. Their volumes are equal.**
5	How many 1 cm cubes would fill the prism shown with no gaps?	**240 cubes**
6	Prism A has a base area of 54 cm^2 and a height of 6 cm. Prism B has a base area of 40 cm^2 and a height of 8 cm. Which prism has more volume, and by how much?	**Prism A has 4 cm^3 more volume.**

PART 2 · APPLY IT

1. **Box B holds 20 in^3 more.** Box A holds 14 × 10 × 5 = 700 in^3. Box B holds 12 × 12 × 5 = 720 in^3, which is 20 in^3 more.
2. **1,200 in^3** Multiply the inside dimensions: 15 × 8 × 10 = 1,200 in^3.

CHALLENGE

Prism B has 48 cm^3 more volume. Its base area is 60 cm^2, compared with 54 cm^2 for A, so their volumes are 480 cm^3 and 432 cm^3.

Accept either V = lwh or V = Bh as a solution method. In comparison problems, require the correct prism or a statement that the volumes are equal, along with the requested difference.