LESSON MAKER PRO

Prism Space Quest

Find how much space rectangular prisms hold.

GRADE 5 · 5.MG.2.e

5.MG.2.e "Solve problems, including those in context, to estimate and determine the volume of a rectangular prism using concrete objects, diagrams, and formulas when the length, width, and height are given in whole number units..."

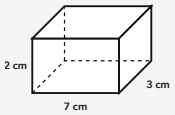
NAME _____ DATE _____

VOLUME OF A PRISM

Volume tells how much space is inside a rectangular prism. Multiply the length, width, and height: V = length × width × height. Write the answer in cubic units because you are counting space filled by unit cubes.

WORKED EXAMPLE

Find the volume of the rectangular prism shown.

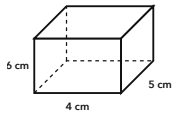


1. Read the dimensions: 7 cm, 3 cm, and 2 cm.
2. Multiply the length and width: 7 × 3 = 21.
3. Multiply by the height: 21 × 2 = 42.

Answer: 42 cubic centimeters

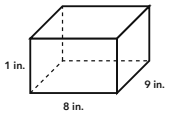
PRACTICE 6 problems

1 Find the volume of the rectangular prism shown.



ANSWER _____

2 Find the volume of the rectangular prism shown.



ANSWER _____

3 A rectangular prism is 10 meters long, 11 meters wide, and 4 meters high. What is its volume?

ANSWER _____

4 A storage box is 12 feet long, 5 feet wide, and 6 feet high. What is its volume?

ANSWER _____

5 A rectangular prism has a length of 9 yards, a width of 8 yards, and a height of 4 yards. Find its volume.

ANSWER _____

6 A rectangular prism is 14 units long, 16 units wide, and 9 units high. Round each dimension to the nearest ten to estimate the volume. Then find the exact volume.

ANSWER _____

APPLY IT Show your work

1 A robotics club keeps parts in a rectangular bin that is 12 inches long, 8 inches wide, and 5 inches high. What volume of parts can the bin hold?

WORK SPACE

ANSWER _____

2 Maya is making a rectangular display case for her collectible figures. The inside is 10 centimeters long, 6 centimeters wide, and 4 centimeters high. What is the volume inside the case?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Box A is 13 inches long, 4 inches wide, and 5 inches high. Box B is 11 inches long, 6 inches wide, and 4 inches high. Which box has the greater volume? Explain by finding both volumes.

WORK SPACE AND ANSWER

ANSWER KEY

Prism Space Quest

GRADE 5 · 5.MG.2.e

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of the rectangular prism shown.	**120 cubic centimeters**
2	Find the volume of the rectangular prism shown.	**72 cubic inches**
3	A rectangular prism is 10 meters long, 11 meters wide, and 4 meters high. What is its volume?	**440 cubic meters**
4	A storage box is 12 feet long, 5 feet wide, and 6 feet high. What is its volume?	**360 cubic feet**
5	A rectangular prism has a length of 9 yards, a width of 8 yards, and a height of 4 yards. Find its volume.	**288 cubic yards**
6	A rectangular prism is 14 units long, 16 units wide, and 9 units high. Round each dimension to the nearest ten to estimate the volume. Then find the exact volume.	**Estimate: 2,000 cubic units; exact volume: 2,016 cubic units**

PART 2 · APPLY IT

1. **480 cubic inches** Multiply 12 × 8 × 5. The bin holds 480 cubic inches.
2. **240 cubic centimeters** Multiply 10 × 6 × 4. The display case has a volume of 240 cubic centimeters.

CHALLENGE

Box B has the greater volume. Box A has a volume of 260 cubic inches, and Box B has a volume of 264 cubic inches, so Box B holds 4 cubic inches more.

Accept equivalent unit wording, such as cubic cm for cubic centimeters, when the numerical answer is correct. For the estimate, accept 2,000 cubic units when students show that they rounded 14 to 10, 16 to 20, and 9 to 10.