

Volume Builders

Find the space inside rectangular prisms.

GRADE 5 • 5.MD.C.5b

CCSS.Math.Content.5.MD.C.5b "Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems."

NAME _____

DATE _____

FIND VOLUME

Volume tells how much space is inside a rectangular prism. Multiply length $\times$ width $\times$ height: $V = l \times w \times h$. You can also multiply the area of the base by the height: $V = b \times h$.

WORKED EXAMPLE

Find the volume of a rectangular prism with a length of 11 units, a width of 3 units, and a height of 4 units.

1. Write the formula: $V = l \times w \times h$.
2. Substitute the measurements: $V = 11 \times 3 \times 4$.
3. Multiply: $V = 33 \times 4 = 132$.

Answer: 132 cubic units

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism with length 6 units, width 5 units, and height 2 units.

ANSWER _____

- 2** A rectangular prism has a base that is 7 units long and 8 units wide. Its height is 9 units. Find the volume.

ANSWER _____

- 3** Find the volume of a rectangular prism with length 10 units, width 12 units, and height 2 units.

ANSWER _____

- 4** A rectangular prism has a base area of 72 square units and a height of 5 units. Find the volume.

ANSWER _____

- 5** Find the volume of a rectangular prism with length 13 units, width 6 units, and height 5 units.

ANSWER _____

- 6** Find the volume of a rectangular prism with length 14 units, width 7 units, and height 2 units.

ANSWER _____

APPLY IT Show your work

- 1** A pet store sets up a small fish tank with an inside length of 15 inches, width of 8 inches, and height of 6 inches. How much space is inside the tank?

WORK SPACE

ANSWER _____

- 2** A student builds a rectangular prize box for a school game night. The box is 9 inches long, 10 inches wide, and 7 inches high. What is the volume of the box?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two rectangular display cases are being compared. Case A is 8 units long, 12 units wide, and 7 units high. Case B is 16 units long, 6 units wide, and 7 units high. Do the cases hold the same volume? Explain with calculations.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism with length 6 units, width 5 units, and height 2 units.	60 cubic units
2	A rectangular prism has a base that is 7 units long and 8 units wide. Its height is 9 units. Find the volume.	504 cubic units
3	Find the volume of a rectangular prism with length 10 units, width 12 units, and height 2 units.	240 cubic units
4	A rectangular prism has a base area of 72 square units and a height of 5 units. Find the volume.	360 cubic units
5	Find the volume of a rectangular prism with length 13 units, width 6 units, and height 5 units.	390 cubic units
6	Find the volume of a rectangular prism with length 14 units, width 7 units, and height 2 units.	196 cubic units

PART 2 • APPLY IT

1. **720 cubic inches** Multiply the three inside measurements: $15 \times 8 \times 6 = 720$. The tank has 720 cubic inches of space inside.
2. **630 cubic inches** Multiply the length, width, and height: $9 \times 10 \times 7 = 630$. The volume is 630 cubic inches.

CHALLENGE

Yes. Case A: $8 \times 12 \times 7 = 672$ cubic units. Case B: $16 \times 6 \times 7 = 672$ cubic units.

Accept correct work using either $V = l \times w \times h$ or $V = b \times h$. Students should label volume in cubic units, cubic inches, or the unit named in the problem.