LESSON MAKER PRO

Prism Power

Use a layer model and a formula to find volume.

GRADE 6 · MA.6.GR.2.3

MA.6.GR.2.3 "Solve mathematical and real-world problems involving the volume of right rectangular prisms with positive rational number edge lengths using a visual model and a formula."

NAME _____ DATE _____

BUILD VOLUME WITH LAYERS

A right rectangular prism is made of equal-sized layers. Multiply length x width x height to find volume: V = l x w x h. A layer or array model shows the rows and columns of the base, and the height tells how tall the layers are.

WORKED EXAMPLE

Find the volume of a right rectangular prism with length 3 units, width 2 units, and height 1/2 unit.

1. Visual model, one layer that is 1/2 unit tall. Each box has a 1 unit by 1 unit base: +---+---+---+ |||| +---+---+---+ |||| +---+---+---+ 3 columns, 2 rows
2. The base has 3 x 2 = 6 square units.
3. Use V = l x w x h = 3 x 2 x 1/2.
4. Multiply: 6 x 1/2 = 3 cubic units.

Answer: 3 cubic units

PRACTICE 6 problems

1 PRACTICE 1. Find the volume of a right rectangular prism with length 4 units, width 5 units, and height 1/4 unit.

ANSWER _____

2 2. Find the volume of a right rectangular prism with length 7/4 unit, width 8/5 unit, and height 5/7 unit.

ANSWER _____

3 3. Find the volume of a right rectangular prism with length 9/10 unit, width 4/9 unit, and height 5/8 unit.

ANSWER _____

4 4. Find the volume of a right rectangular prism with length 11/6 units, width 12/11 units, and height 5/12 unit.

ANSWER _____

5 5. Find the volume of a right rectangular prism with length 7/8 unit, width 16/7 units, and height 15/16 unit.

ANSWER _____

6 6. A right rectangular prism has a volume of 35/12 cubic units. Its length is 7/6 units and its width is 5/4 units. Find its height.

ANSWER _____

APPLY IT Show your work

1 APPLY 1. A school gaming club stores controllers in a rectangular clear bin. The bin is 5/4 feet long, 7/6 feet wide, and 12/5 feet high. What is the volume of the bin?

WORK SPACE

ANSWER _____

2 2. Students are building a rectangular planter for a pollinator garden. The planter is 15/8 feet long, 4/5 foot wide, and 14/9 foot high. What is the volume of the planter?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

CHALLENGE Maya says that a right rectangular prism with length 5/6 unit, width 9/5 unit, and height 8/9 unit has a volume of 8/3 cubic units. Is Maya correct? Explain using the volume formula.

_____

_____

ANSWER KEY

Prism Power

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	PRACTICE 1. Find the volume of a right rectangular prism with length 4 units, width 5 units, and height 1/4 unit.	**5 cubic units**
2	2. Find the volume of a right rectangular prism with length 7/4 unit, width 8/5 unit, and height 5/7 unit.	**2 cubic units**
3	3. Find the volume of a right rectangular prism with length 9/10 unit, width 4/9 unit, and height 5/8 unit.	**1/4 cubic unit**
4	4. Find the volume of a right rectangular prism with length 11/6 units, width 12/11 units, and height 5/12 unit.	**5/6 cubic unit**
5	5. Find the volume of a right rectangular prism with length 7/8 unit, width 16/7 units, and height 15/16 unit.	**15/8 cubic units**
6	6. A right rectangular prism has a volume of 35/12 cubic units. Its length is 7/6 units and its width is 5/4 units. Find its height.	**2 units**

PART 2 · APPLY IT

1. **7/2 cubic feet** Use V = l x w x h. (5/4) x (7/6) x (12/5) = 7/2.
2. **7/3 cubic feet** Use V = l x w x h. (15/8) x (4/5) x (14/9) = 7/3.

CHALLENGE

No. V = (5/6) x (9/5) x (8/9) = 4/3 cubic units, not 8/3 cubic units.

Accept equivalent fraction forms, such as 1 1/2 cubic units for 3/2 cubic units. Require cubic units for volume answers and units for the missing height.