

Grade 5 · Volume of Rectangular Prisms · Test

Common Core 5.MD.C.3, 5.MD.C.4, 5.MD.C.5 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

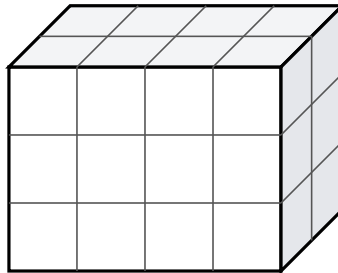
This test has 9 questions worth 20 points in all. Allow 45 minutes. Write cubic units with every volume. The questions cover counting unit cubes, the volume formulas for rectangular prisms, missing edges, and solids made of two prisms.

Test information

- **Grade:** Grade 5
- **Chapter:** Volume of Rectangular Prisms
- **Common Core:** 5.MD.C.3, 5.MD.C.4, 5.MD.C.5
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 3 pts; Question 5: 3 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Cubes in a prism (2 points)

The prism is built of unit cubes.



A prism of unit cubes.

- How many cubes are in the bottom layer? (1 point)
- What is the volume of the prism? (1 point)

Question 2: Using the formula (2 points)

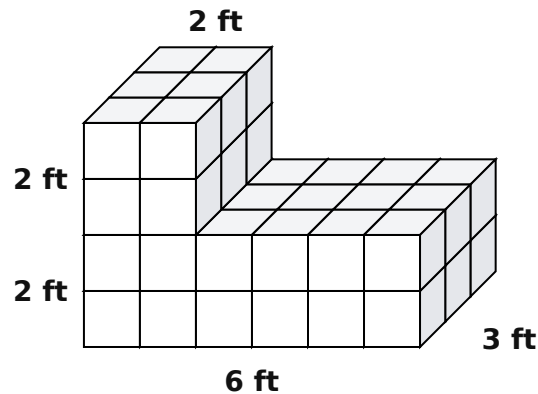
- Find the volume of a prism that is 9 cm long, 4 cm wide, and 5 cm high. (1 point)
- Find the volume of a cube with edges 7 ft long. (1 point)

Question 3: Missing dimensions (2 points)

- a. A prism has a volume of 168 cubic meters, a length of 7 m, and a width of 4 m. Find the height. (1 point)
- b. A prism has a base area of 45 square inches and a volume of 270 cubic inches. Find the height. (1 point)

Question 4: Composite solid (3 points)

The solid is made of two rectangular prisms: a long slab and a tower on its left end.

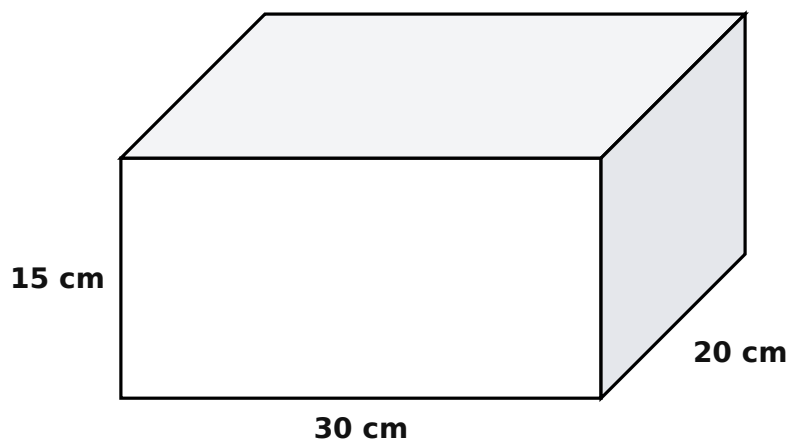


The slab is 6 ft by 3 ft by 2 ft. The tower is 2 ft by 3 ft by 2 ft.

- a. Find the volume of the slab. (1 point)
- b. Find the volume of the tower. (1 point)
- c. Find the volume of the whole solid. (1 point)

Question 5: Aquarium (3 points)

An aquarium is 30 cm long, 20 cm wide, and 15 cm high. It is filled with water to a height of 12 cm.



The aquarium has a height of 15 cm.

- a. Find the volume of the aquarium. *(1 point)*
- b. Find the volume of the water. *(1 point)*
- c. How many cubic centimeters of space are above the water? *(1 point)*

Question 6: Packing cubes (2 points)

A box is 16 in long, 10 in wide, and 8 in high.

- a. Find the volume of the box. *(1 point)*
- b. How many cubes with 2-inch edges fit in the box exactly? *(1 point)*

Question 7: Comparing boxes (2 points)

Box A is 12 in by 5 in by 4 in. Box B is 10 in by 6 in by 5 in. Which box holds more, and how many cubic inches more?

Question 8: Sandbox sand (2 points)

A sandbox has a base area of 24 square feet and is 2 feet deep. A bag of sand fills 3 cubic feet.

- a. Find the volume of the sandbox. *(1 point)*
- b. How many bags of sand fill the sandbox? *(1 point)*

Question 9: Layers and dimensions (2 points)

- a. A prism has a volume of 72 cubic units, and each layer has 12 cubes. How many layers does it have? *(1 point)*
- b. Write the length, width, and height of a rectangular prism with a volume of 24 cubic units. Do not use 4, 3, and 2. *(1 point)*