

Grade 6 · Volume of Rectangular Prisms · Test

Common Core 6.G.A.2 · mathovore.fr

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

This 45-minute test checks Grade 6 skills on the volume of rectangular prisms, with whole-number and fractional edge lengths, packing with cubes, and word problems. It has eight questions worth 20 points in all. Show your work and write cubic units in every answer.

Test information

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

Question 1: Whole-number edges (2 points)

- Find the volume of a box that is 9 in long, 4 in wide, and 6 in tall. (1 point)
- Find the volume of a prism with a base area of 35 ft^2 and a height of 4 ft. (1 point)

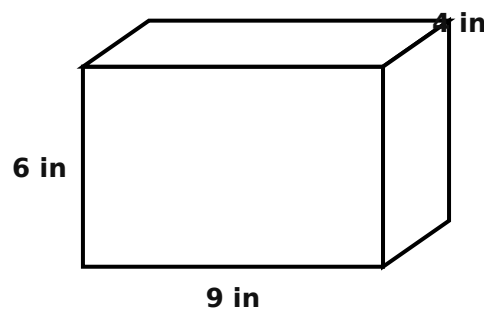


Figure for Question 1(a).

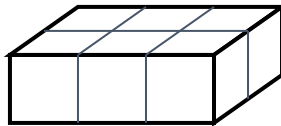
Question 2: Fractional edges (2 points)

A prism has a length of $\frac{3}{4}$ ft, a width of $\frac{1}{2}$ ft, and a height of 4 ft. Find its volume.

Question 3: Cube packing (3 points)

A rectangular prism is packed with cubes that have edges of $\frac{1}{2}$ in. The prism holds 3 cubes along its length, 2 cubes along its width, and 1 layer.

- a. Find the length, width, and height of the prism. (1 point)
- b. Find the volume by counting cubes. (1 point)
- c. Find the volume by multiplying the edge lengths. (1 point)



Each small cube has edges of $\frac{1}{2}$ in

Figure for Question 3.

Question 4: Missing height (2 points)

A rectangular prism has a volume of 84 ft^3 , a length of 7 ft, and a width of 4 ft. Find its height.

Question 5: Fish tank (3 points)

A fish tank is 30 in long, 12 in wide, and 15 in tall. The water is 10 in deep.

- a. Find the volume of the tank. (1 point)
- b. Find the volume of the water. (1 point)
- c. Find the volume of water that must be added to fill the tank. (1 point)

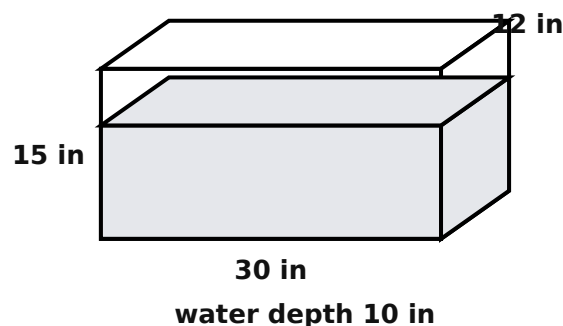


Figure for Question 5.

Question 6: Packing crates (3 points)

A crate is 6 ft long, 3 ft wide, and 3 ft tall. It is packed with cube-shaped boxes that have

edges of $1\frac{1}{2}$ ft.

- a. Find the volume of the crate. (1 point)
- b. Find the volume of one box. (1 point)
- c. Find how many boxes fit in the crate. (1 point)

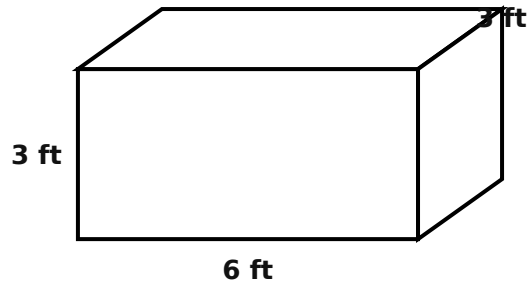


Figure for Question 6.

Question 7: Compare prisms (2 points)

Prism A is 5 ft by 4 ft by 3 ft. Prism B is 6 ft by $2\frac{1}{2}$ ft by 5 ft. Which prism has the greater volume, and by how much?

Question 8: Sandbox sand (3 points)

A sandbox is 8 ft long and 5 ft wide. Aisha fills it with sand to a depth of $\frac{3}{4}$ ft. Sand is sold in bags of $1\frac{1}{2}$ ft³ for \$7.25 per bag.

- a. Find the volume of sand needed. (1 point)
- b. Find the number of bags needed. (1 point)
- c. Find the total cost. (1 point)