

Grade 6 · Volume of Rectangular Prisms · Quiz

Common Core 6.G.A.2 · mathovore.fr

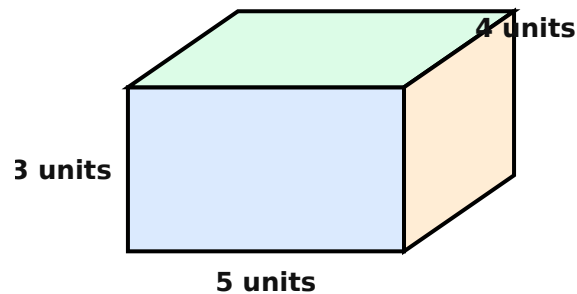
Name: _____ Date: ____/____/____ Score: _____

This quick quiz has ten multiple-choice questions on the volume of rectangular prisms, including fractional edges and cube packing. Choose one answer for each question. After you finish, read each explanation to see the common mistake behind the wrong choices.

Grade 6 Common Core: 6.G.A.2

Questions

Question 1



Prism for Question 1.

What is the volume of the rectangular prism shown?

- A. 12 cubic units
- B. 94 cubic units
- C. 60 cubic units
- D. 20 cubic units

Question 2

Which unit is best for measuring the volume of a shipping box?

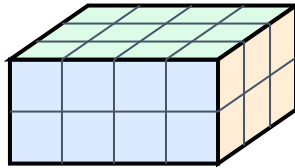
- A. cubic inches
- B. square inches
- C. inches
- D. pounds

Question 3

A prism has a base area of 18 ft^2 and a height of 5 ft . What is its volume?

- A. 23 ft^3
- B. 45 ft^3
- C. 180 ft^3
- D. 90 ft^3

Question 4



cube edge = $\frac{1}{2}$ unit

Prism for Question 4.

The prism is packed with cubes that have edges of $\frac{1}{2}$ unit. What is the volume of the prism?

- A. 3 cubic units
- B. 24 cubic units
- C. 12 cubic units
- D. 6 cubic units

Question 5

What is the volume of a prism that is 8 in long, $\frac{1}{2} \text{ in}$ wide, and $\frac{1}{2} \text{ in}$ tall?

- A. 4 in^3
- B. 2 in^3
- C. 9 in^3
- D. 16 in^3

Question 6

A prism has a volume of 96 ft^3 , a length of 8 ft , and a width of 4 ft . What is its height?

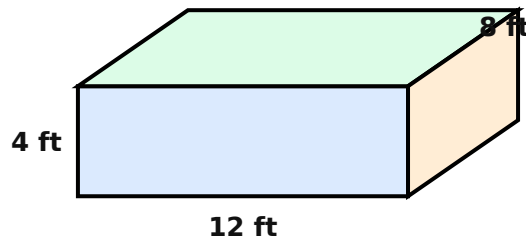
- A. 12 ft
- B. 24 ft
- C. 8 ft
- D. 3 ft

Question 7

What is the volume of a cube with edges of 5 ft ?

- A. 15 ft^3
- B. 25 ft^3
- C. 125 ft^3
- D. 150 ft^3

Question 8



Pool for Question 8.

A pool is a rectangular prism. How many cubic feet of water fill the pool to the top?

- A. 24 ft^3
- B. 384 ft^3
- C. 96 ft^3
- D. 192 ft^3

Question 9

A prism has a volume of 72 ft^3 and a base area of 18 ft^2 . What is its height?

- A. 54 ft
- B. 4 ft
- C. 90 ft
- D. $1,296 \text{ ft}$

Question 10

A planter is 4 ft long, $1\frac{1}{2} \text{ ft}$ wide, and 1 ft deep. Soil costs $\$3$ per cubic foot. What is the cost to fill the planter?

- A. $\$12$
- B. $\$24$
- C. $\$18$
- D. $\$6$

Answer key

1. **C** - $V = 5 \times 4 \times 3 = 60$. Adding the edges gives 12, and 94 is the surface area.
2. **A** - Volume counts cubes that fill a solid, so it uses cubic units. Square units measure area and inches measure length.
3. **D** - $V = Bh = 18 \times 5 = 90$. Adding gives 23, and halving gives 45.
4. **A** - There are $4 \times 3 \times 2 = 24$ cubes, each $\frac{1}{8}$ cubic unit, so $V = 24 \times \frac{1}{8} = 3$. Counting each cube as 1 gives 24.
5. **B** - $8 \times \frac{1}{2} \times \frac{1}{2} = 4 \times \frac{1}{2} = 2$. Using only one fraction gives 4.
6. **D** - The base area is $8 \times 4 = 32$, and $96 \div 32 = 3$. Dividing by only one edge gives 12 or 24.
7. **C** - $V = 5 \times 5 \times 5 = 125$. Adding gives 15, and 150 is the surface area.
8. **B** - $V = 12 \times 8 \times 4 = 384$. Multiplying only two edges gives 96.
9. **B** - $h = V \div B = 72 \div 18 = 4$. Subtracting, adding, or multiplying the numbers does not undo $V = Bh$.
10. **C** - $V = 4 \times \frac{3}{2} \times 1 = 6 \text{ ft}^3$, and $6 \times \$3 = \$18$. The number 6 alone is the volume.

Remember:

- $V = \ell \times w \times h$ and $V = B \times h$ give the same volume.
- Volume is measured in cubic units such as in^3 or ft^3 .
- A cube with edge $\frac{1}{2}$ has volume $\frac{1}{8}$ cubic unit.
- To find a missing height, divide the volume by the base area.