

Grade 5 · Volume of Rectangular Prisms · Quiz

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

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

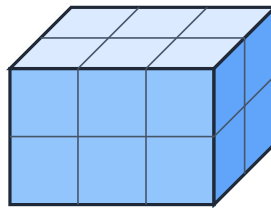
Choose the best answer for each of the 10 questions. Several questions show a solid. Remember that volume is measured in cubic units and that every edge of the prism is multiplied.

Grade 5 Common Core: 5.MD.C.3 · 5.MD.C.4 · 5.MD.C.5

Questions

Question 1

What is the volume of the prism built of unit cubes?



Each small cube is 1 cubic unit.

- A. 7 cubic units
- B. 6 cubic units
- C. 12 cubic units
- D. 24 cubic units

Question 2

What is the volume of a prism that is 5 in long, 4 in wide, and 3 in high?

- A. 12 cubic inches
- B. 60 cubic inches
- C. 60 square inches
- D. 120 cubic inches

Question 3

Which unit is best for the volume of a classroom?

- A. square feet
- B. feet

- C. feet per cube
- D. cubic feet

Question 4

A prism has a base area of 18 square meters and a height of 5 meters. What is its volume?

- A. 23 cubic meters
- B. 90 cubic meters
- C. 3.6 cubic meters
- D. 180 cubic meters

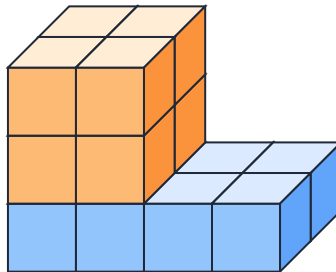
Question 5

A prism has a volume of 84 cubic feet, a length of 6 ft, and a width of 2 ft. What is its height?

- A. 7 ft
- B. 14 ft
- C. 42 ft
- D. 76 ft

Question 6

The solid is made of two prisms of unit cubes. What is its volume?



A flat slab with a block on top.

- A. 8 cubic units
- B. 24 cubic units
- C. 32 cubic units
- D. 16 cubic units

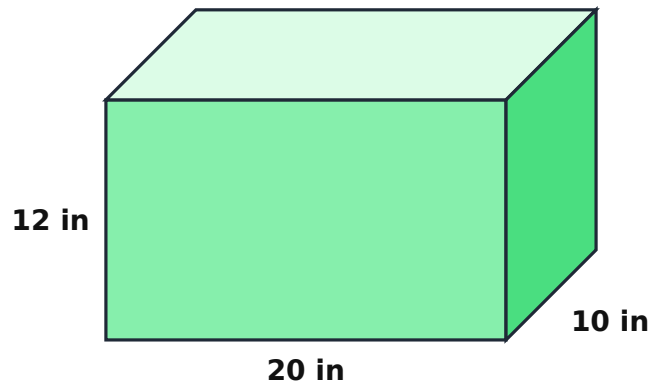
Question 7

What is the volume of a cube with edges 4 cm long?

- A. 12 cubic centimeters
- B. 16 cubic centimeters
- C. 48 cubic centimeters
- D. 64 cubic centimeters

Question 8

A fish tank is 20 in long, 10 in wide, and 12 in high. What is its volume?

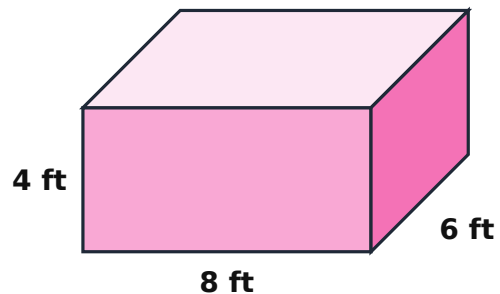


A fish tank.

- A. 240 cubic inches
- B. 2,400 cubic inches
- C. 42 cubic inches
- D. 200 cubic inches

Question 9

A box is 8 ft long, 6 ft wide, and 4 ft high. How many cubes with 2-ft edges fit inside exactly?



A box to be packed with 2-ft cubes.

- A. 192 cubes
- B. 96 cubes
- C. 24 cubes
- D. 48 cubes

Question 10

Which prism has a volume of 36 cubic units?

- A. 3 by 4 by 3
- B. 3 by 4 by 4

- C. 3 by 3 by 3
- D. 4 by 4 by 2

Answer key

1. **C** - Each layer has $3 \times 2 = 6$ cubes and there are 2 layers: $6 \times 2 = 12$. Adding the edges gives 7.
2. **B** - $5 \times 4 \times 3 = 60$ cubic inches. Adding the edges gives 12, and square inches are the unit for area.
3. **D** - Volume is measured in cubic units. Square feet measure area and feet measure length.
4. **B** - $V = B \times h = 18 \times 5 = 90$. Adding 18 and 5 gives 23.
5. **A** - $6 \times 2 \times h = 84$ means $12 \times h = 84$, so $h = 7$. Dividing by only the length gives 14.
6. **D** - The slab has $4 \times 2 \times 1 = 8$ cubes and the block has $2 \times 2 \times 2 = 8$ cubes, so $8 + 8 = 16$.
7. **D** - $4 \times 4 \times 4 = 64$. Multiplying only two edges gives 16.
8. **B** - $20 \times 10 \times 12 = 200 \times 12 = 2,400$. Stopping after two edges gives 200.
9. **C** - The box is $8 \times 6 \times 4 = 192$ cubic feet and one cube is $2 \times 2 \times 2 = 8$ cubic feet. $192 \div 8 = 24$.
10. **A** - $3 \times 4 \times 3 = 36$. The others have volumes of 48, 27, and 32.

Remember:

- A unit cube has a volume of 1 cubic unit.
- Volume of a rectangular prism: $V = limeswimesh$ or $V = Bimesh$.
- B is the area of the base, which tells how many cubes fit in one layer.
- Volume is measured in cubic units such as cubic inches, cubic feet, and cubic centimeters.
- To find the volume of a composite solid, add the volumes of its non-overlapping prisms.