

Grade 5 - Volume of Rectangular Prisms - Test Answer Key

Common Core 5.MD.C.3, 5.MD.C.4, 5.MD.C.5 · maths-pdf.fr/en/

Use this key to score the test out of 20 points. Every answer shows the work and a scoring guide. Give partial credit when the setup is correct but one multiplication has a small slip.

Grade 5 · Common Core State Standards: **5.MD.C.3, 5.MD.C.4, 5.MD.C.5**

Question 1 - Counting unit cubes [2 pts]

- a. $4 \times 3 = 12$ cubes
- b. $12 \times 2 = 24$ cubic units

Scoring: 1 point for each part.

Question 2 - Volume from edges [2 pts]

$$V = 9 \times 4 \times 3 = 108.$$

$$108 \text{ ft}^3$$

Scoring: 1 point for a correct method, 1 point for 108 with cubic feet.

Question 3 - Base area and height [2 pts]

$$V = B \times h = 35 \times 6 = 210.$$

$$210 \text{ cm}^3$$

Scoring: 1 point for multiplying base area by height, 1 point for the answer with units.

Question 4 - Missing height [2 pts]

$$\text{Base area: } 8 \times 7 = 56.$$

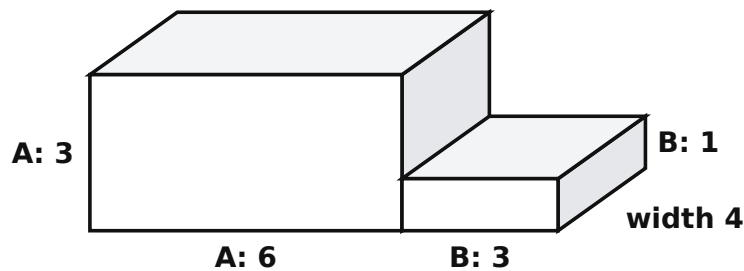
$$224 \div 56 = 4.$$

4 in

Scoring: 1 point for the base area, 1 point for the height.

Question 5 - Composite solid [3 pts]

- a. $6 \times 4 \times 3 = 72$ cubic units
- b. $3 \times 4 \times 1 = 12$ cubic units
- c. $72 + 12 = 84$ cubic units



$$72 + 12 = 84 \text{ cubic units}$$

A composite solid made of prism A and prism B.

Scoring: 1 point per part.

Question 6 - Compare packages [2 pts]

Cereal: $8 \times 2 \times 12 = 192$. Juice: $5 \times 4 \times 10 = 200$.

The juice box is greater by 8 cm^3

Scoring: 1 point for both volumes, 1 point for the comparison and difference.

Question 7 - Aquarium [3 pts]

- a. $24 \times 12 \times 10 = 2,880$ cubic inches
- b. $24 \times 12 \times 8 = 2,304$ cubic inches
- c. $2,880 - 2,304 = 576$ cubic inches

Scoring: 1 point per part.

Question 8 - Doubling edges [2 pts]

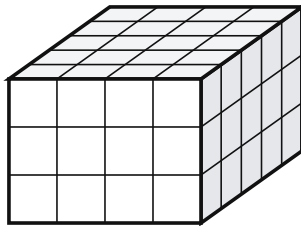
Original: $2 \times 3 \times 4 = 24$. Double the height: $2 \times 3 \times 8 = 48$, which is 2 times 24. Double all three edges: $4 \times 6 \times 8 = 192$, which is 8 times 24.

Jamal is correct. Mei is not.

Scoring: 1 point for testing both ideas with numbers, 1 point for the correct conclusion.

Question 9 - Stacked cubes [2 pts]

- a. $4 \times 5 = 20$ cubes per layer, so $20 \times 3 = 60 \text{ cm}^3$
- b. One more layer needs 20 cubes



$20 \times 3 = 60$ cubes

A rectangular prism.

Scoring: 1 point for each part.

Total
20 points