

Grade 6 - Volume of Prisms with Fractional Edges - Test Answer Key

Common Core 6.G.A.2 · maths-pdf.fr/en/

Use this key to score the volume test out of 20 points. Each solution is fully worked, and the scoring line explains how to award each point and partial credit.

Grade 6 · Common Core State Standards: **6.G.A.2**

Question 1 - Volume of a prism [2 pts]

$$6 \cdot 4 \cdot 5 = 120.$$

The volume is 120 cm^3 .

Scoring: 1 point for the formula; 1 point for 120 with units.

Question 2 - Fractional edge [2 pts]

$$\frac{5}{2} \cdot 4 \cdot 2 = 20.$$

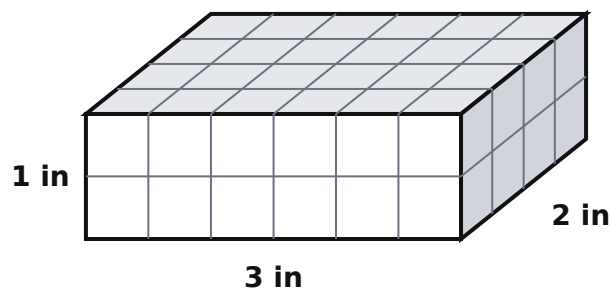
The volume is 20 ft^3 .

Scoring: 1 point for the setup; 1 point for 20 cubic feet.

Question 3 - Unit cubes [2 pts]

Cubes: $6 \cdot 4 \cdot 2 = 48$. Each is $\frac{1}{8}$ cubic inch.

$$48 \cdot \frac{1}{8} = 6 \text{ cubic inches.}$$



$$3 \times 2 \times 1 = 6 \text{ cubic inches.}$$

Scoring: 1 point for 48 cubes; 1 point for 6 cubic inches.

Question 4 - Base times height [2 pts]

$$V = \frac{2}{3} \cdot 9 = 6.$$

The volume is 6 m³.

Scoring: 1 point for $V = Bh$; 1 point for 6.

Question 5 - Missing dimension [2 pts]

$$60 = 5 \cdot 4 \cdot h = 20h.$$

$$h = 3.$$

Scoring: 1 point for the equation; 1 point for 3 inches.

Question 6 - Water in a tank [2 pts]

$$2 \cdot \frac{3}{2} \cdot 1 = 3.$$

It holds 3 ft³.

Scoring: 1 point for the setup; 1 point for 3 cubic feet.

Question 7 - Compare boxes [2 pts]

$$A: 5 \cdot 4 \cdot 3 = 60. \quad B: 6 \cdot 3 \cdot 3 = 54.$$

Box A is greater by $60 - 54 = 6$ cubic inches.

Scoring: 1 point for both volumes; 1 point for the comparison.

Question 8 - Packing [3 pts]

$$\text{Bin: } 3 \cdot 2 \cdot \frac{3}{2} = 9 \text{ cubic feet.}$$

Cube: $\frac{1}{8}$ cubic foot.

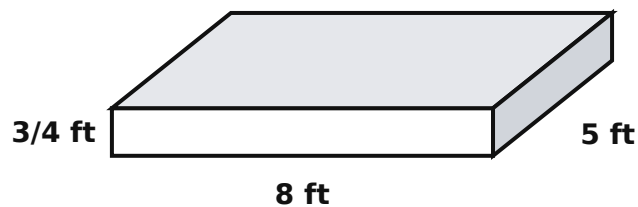
$9 \div \frac{1}{8} = 72$ cubes. (Check: $6 \cdot 4 \cdot 3 = 72$ cubes along the length, width, and height.)

Scoring: 1 point for the bin volume; 1 point for the cube volume; 1 point for 72.

Question 9 - Sand for a play area [3 pts]
--

$8 \cdot 5 \cdot \frac{3}{4} = 30$ cubic feet.

Cost: $\$4.00 \cdot 30 = \$120.00$.



Sand depth is $\frac{3}{4}$ foot.

Scoring: 1 point for the setup; 1 point for 30 cubic feet; 1 point for \$120.

Total
20 points