ALBERT

Name _____ Date _____

Volume of Rectangular Prisms Worksheet

Grade 6 · Common Core 6.G.A.2

> Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Practice

Builds the skill step by step.

1. Find the volume of a rectangular prism that is 4 cm long, 3 cm wide and 5 cm tall.

2. Find the volume of a cube with edges of 6 inches.

3. A box is 2 ft long, $\frac{1}{2}$ ft wide and 3 ft tall. What is its volume?

4. How many $\frac{1}{2}$-inch cubes fit in a 1-inch cube?

   A. 8

   B. 2

   C. 4

   D. 6

5. A prism has a base area of 12 square meters and a height of 4 meters. What is its volume?

6. Find the volume of a rectangular prism 10 m by 2 m by 1.5 m.

7. Find the volume of a cube with edges of $\frac{1}{2}$ foot.

8. Which expression gives the volume of a box 5 in by 3 in by $\frac{1}{2}$ in?

   A. $5 \times 3 \times \frac{1}{2}$

   B. $5 + 3 + \frac{1}{2}$

   C. $2(5 + 3 + \frac{1}{2})$

   D. 5×3

9. A fish tank is 20 inches long, 10 inches wide and 12 inches tall. What is its volume?

10. A box is packed with 1-cm cubes: 5 cubes long, 4 wide and 2 tall. How many cubes are in the box?

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On Level

Grade-level practice.

1. Find the volume of a rectangular prism with edges $\frac{3}{4}$ m, 2 m and $\frac{2}{3}$ m.

2. A box is $2\frac{1}{2}$ inches long, 2 inches wide and 4 inches tall. What is its volume?

3. How many $\frac{1}{2}$-inch cubes fill a box that is 2 in by 1 in by 1 in?

4. A prism is packed with $\frac{1}{4}$-foot cubes: 8 along the length, 4 along the width and 4 along the height. What is its volume?

   A. 128 cubic feet

   B. 32 cubic feet

   C. $\frac{1}{2}$ cubic foot

   D. 2 cubic feet

5. A box has a volume of 60 cubic inches. Its length is 5 inches and its width is 4 inches. What is its height?

6. Find the volume of a cube with edges of $1\frac{1}{2}$ feet.

7. A sandbox is 6 ft long and 4 ft wide. It is filled with sand to a depth of $\frac{1}{2}$ ft. How many cubic feet of sand is that?

8. Find the volume of a rectangular prism 3.5 cm by 2 cm by 6 cm.

9. Two boxes: Box A is 4 × 3 × 2 inches. Box B is 6 × 2 × 2 inches. Which is true?

   A. Both have a volume of 24 cubic inches.

   B. Box A is larger.

   C. Box B is larger.

   D. Box B is twice as large.

10. A prism has a base area of $\frac{15}{2}$ square inches and a height of $\frac{2}{3}$ inch. What is its volume?

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Challenge

Multi-step and word problems that stretch it.

1. A storage bin is $2\frac{1}{2}$ ft long, $1\frac{1}{2}$ ft wide and 2 ft tall. How many cubic feet does it hold?

2. A gift box is 6 in by 4 in by 3 in. How many $\frac{1}{2}$-inch cubes are needed to fill it?

3. An aquarium is 30 in by 12 in by 15 in. It is filled to $\frac{2}{3}$ of its height. What volume of water is in it?

4. If every edge of a rectangular prism is doubled, what happens to the volume?

   A. It doubles.

   B. It is multiplied by 4.

   C. It is multiplied by 6.

   D. It is multiplied by 8.

5. A box has a volume of 45 cubic cm. Its height is 2.5 cm and its width is 3 cm. What is its length?

6. A cube-shaped tank holds 125 cubic feet of water. How long is each edge?

7. Concrete costs \$90 per cubic yard. A patio slab is 6 yd long, 4 yd wide and $\frac{1}{6}$ yd thick. How much will the concrete cost?

8. Ella says a box $\frac{1}{2}$ ft by $\frac{1}{2}$ ft by 4 ft has a volume of 2 cubic feet. What mistake did she make, and what is the correct volume?

9. How many boxes that are 2 ft by 1 ft by 1 ft fit in a closet that is 6 ft by 4 ft by 3 ft?

10. Two prisms: Prism A has base area 18 in^2 and height $\frac{4}{3}$ in. Prism B is $\frac{3}{2}$ in by 4 in by 4 in. Which has the greater volume?