ALBERT

Name _____ Date _____

Volume Formula Worksheet

Grade 5 · Common Core 5.MD.C.5b

> Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Practice

Builds the skill step by step.

1. A box is 10 inches long, 4 inches wide and 3 inches tall. What is its volume?

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

3. A shed has a floor area of 30 square feet and is 8 feet tall. What is its volume?

4. A sandbox is 6 feet long, 4 feet wide and 1 foot deep. How much sand fills it?

5. In the formula V = b × h, what does b stand for?

   A. the width

   B. the number of boxes

   C. the length of the base

   D. the area of the base

6. A cereal box is 8 inches long, 3 inches wide and 12 inches tall. What is its volume?

7. A room is 12 feet long, 10 feet wide and 8 feet tall. What is its volume?

8. A shipping box is a cube with 2-foot edges. What is its volume?

9. A brick is 8 inches long, 4 inches wide and 2 inches tall. What is its volume?

10. A prism has b = 25 square centimeters and h = 4 centimeters. What is its volume?

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On Level

Grade-level practice.

1. A pool is 25 meters long, 10 meters wide and 2 meters deep. What is its volume?

2. How many 1-centimeter cubes fill a box 12 cm long, 6 cm wide and 5 cm tall?

3. A truck bed is 8 feet long, 5 feet wide and 2 feet deep. What is its volume?

4. A box has a volume of 180 cubic inches. It is 6 inches long and 5 inches wide. How tall is it?

5. A garden bed is 10 feet long, 3 feet wide and 2 feet deep. Each bag holds 2 cubic feet of soil. How many bags fill the bed?

6. A container has a volume of 96 cubic inches and a base area of 16 square inches. How tall is it?

7. Box A is 5 by 4 by 3 inches. Box B is 6 by 3 by 3 inches. How much greater is the larger volume?

8. A fish tank is 24 inches long and 12 inches wide. It is filled with water to a depth of 10 inches. What is the volume of the water?

9. Which box holds the most?

   A. 10 by 10 by 2 inches

   B. 5 by 5 by 5 inches

   C. 4 by 6 by 8 inches

   D. 3 by 9 by 7 inches

10. A box has a base area of 48 square inches and a height of 5 inches. Explain how to find its volume, and find it.

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Challenge

Multi-step and word problems that stretch it.

1. A storage unit is 10 feet long, 10 feet wide and 8 feet tall. What is its volume?

2. A box is 3 feet long, 2 feet wide and 2 feet tall. How many boxes that are 1 cubic foot each fit inside?

3. A water tank is 4 meters long, 3 meters wide and 2 meters tall. 1 cubic meter holds 1,000 liters. How many liters does the tank hold?

4. A box has a volume of 240 cubic inches. It is 10 inches long and 4 inches tall. How wide is it?

5. A pool is 20 feet long and 8 feet wide, with a volume of 480 cubic feet. How deep is it?

6. A planter is 4 feet long, 2 feet wide and 1 foot deep. Soil costs 5 dollars per cubic foot. How much does it cost to fill?

7. How many boxes 2 feet on each edge fit in a truck 8 feet long, 6 feet wide and 4 feet tall?

8. Each block is 9 inches long, 4 inches wide and 3 inches tall. What is the volume of a stack of 5 blocks?

9. A tank is 30 cm long, 20 cm wide and 20 cm tall. It has water 10 cm deep. How much more water fills it?

10. What happens to the volume of a box if you double its length and keep the width and height the same?

    A. It doubles.

    B. It stays the same.

    C. It is 4 times as large.

    D. It is 8 times as large.