

Unit 1: Finding Volume

ADVANCED · SET 4

Name: _____

Date: _____

Solve each problem and write your answer on the line. Show your work on scrap paper, and remember to label volumes with cubic units.

1. A storage bin shaped like a right rectangular prism holds $8,470 \text{ cm}^3$. The bottom of the bin measures 22 cm by 11 cm. How tall is the bin?

Answer: _____

3. A crate measures 15 cm long, 12 cm wide, and 9 cm tall. It is packed completely full with cubes that are 3 cm on every edge. How many cubes fit inside?

Answer: _____

5. A shipping crate is 16 ft long, 9 ft wide, and 7 ft tall. A new crate has the same length and width, but its height is 3 times as tall. How many MORE cubic feet does the new crate hold than the old one?

Answer: _____

7. A solid clay block is $20 \text{ cm} \times 12 \text{ cm} \times 8 \text{ cm}$. A chunk measuring $6 \text{ cm} \times 5 \text{ cm} \times 8 \text{ cm}$ is cut out and thrown away. What is the volume of the clay that is left?

Answer: _____

9. A rectangular mulch box is 9 ft long, 4 ft wide, and 2 ft deep. Mulch costs \$3 for each cubic foot. How much does it cost to fill the box all the way?

Answer: _____

2. A garden planter is made of two rectangular prisms pushed together. The long part is $14 \text{ in} \times 9 \text{ in} \times 6 \text{ in}$. The short part is $9 \text{ in} \times 5 \text{ in} \times 6 \text{ in}$. What is the total volume of the planter?

Answer: _____

4. Mia has two toolboxes. One is $18 \text{ cm} \times 13 \text{ cm} \times 10 \text{ cm}$. The other is $15 \text{ cm} \times 12 \text{ cm} \times 11 \text{ cm}$. How much greater is the volume of the larger toolbox than the smaller one?

Answer: _____

6. A fish tank is 40 cm long, 25 cm wide, and 30 cm tall. Dev fills it with water up to a depth of 18 cm. What is the volume of the water in the tank?

Answer: _____

8. A wading pool shaped like a rectangular prism is 12 ft long, 8 ft wide, and 5 ft deep. A hose adds 16 cubic feet of water each minute. How many minutes does it take to fill the pool completely?

Answer: _____

10. A bakery stacks 24 identical boxes of cookies. Each box is $8 \text{ cm} \times 6 \text{ cm} \times 5 \text{ cm}$. What is the total volume of all 24 boxes together?

Answer: _____

11. A step stool is built from two rectangular prisms. The bottom prism is $9 \text{ in} \times 4 \text{ in} \times 5 \text{ in}$. The top prism has a base of 6 in by 4 in . The whole stool has a volume of 468 in^3 . How tall is the top prism?

Answer: _____

12. A candy box is 32 cm long, 8 cm wide, and 2 cm tall. A cube-shaped gift box holds exactly the same volume. How long is one edge of the cube?

Answer: _____