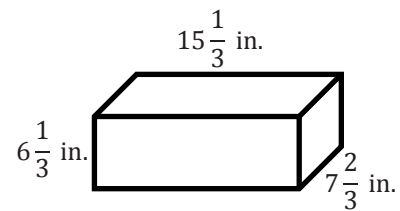


**Problem Set**

Solve each problem below.

1. Dante built a wooden, cubic toy box for his son. Each side of the box measures 2 feet.
  - a. How many square feet of wood did he use to build the box?
  - b. How many cubic feet of toys will the box hold?
2. A company that manufactures gift boxes wants to know how many different-sized boxes having a volume of 50 cubic centimeters it can make if the dimensions must be whole centimeters.
  - a. List all the possible whole number dimensions for the box.
  - b. Which possibility requires the least amount of material to make?
  - c. Which box would you recommend the company use? Why?
3. A rectangular box of rice is shown below. What is the greatest amount of rice, in cubic inches, that the box can hold?



4. The Mars Cereal Company has two different cereal boxes for Mars Cereal. The large box is 8 inches wide, 11 inches high, and 3 inches deep. The small box is 6 inches wide, 10 inches high, and 2.5 inches deep.
  - a. How much more cardboard is needed to make the large box than the small box?
  - b. How much more cereal does the large box hold than the small box?
5. A swimming pool is 8 meters long, 6 meters wide, and 2 meters deep. The water-resistant paint needed for the pool costs \$6 per square meter. How much will it cost to paint the pool?
  - a. How many faces of the pool do you have to paint?
  - b. How much paint (in square meters) do you need to paint the pool?
  - c. How much will it cost to paint the pool?
6. Sam is in charge of filling a rectangular hole with cement. The hole is 9 feet long, 3 feet wide, and 2 feet deep. How much cement will Sam need?

7. The volume of Box D subtracted from the volume of Box C is 23.14 cubic centimeters. Box D has a volume of 10.115 cubic centimeters.
- Let  $C$  be the volume of Box C in cubic centimeters. Write an equation that could be used to determine the volume of Box C.
  - Solve the equation to determine the volume of Box C.
  - The volume of Box C is one-tenth the volume another box, Box E. Let  $E$  represent the volume of Box E in cubic centimeters. Write an equation that could be used to determine the volume of Box E, using the result from part (b).
  - Solve the equation to determine the volume of Box E.