



Solving Problems with Volume Formulas

► Read and solve the problems.

- 1 A fish tank is a right rectangular prism that is $10\frac{1}{2}$ in. long, 10 in. wide, and $12\frac{1}{3}$ in. tall. How many cubic inches of water are needed to fill the tank?
- 2 The base of a right rectangular prism is $4\frac{2}{3}$ mm by 3 mm. The height is $5\frac{1}{2}$ mm. What is the volume of the prism?
- 3 A terrarium is a right rectangular prism that is 3 ft long, $1\frac{1}{2}$ ft wide, and $3\frac{1}{2}$ ft tall. What is the volume of the terrarium?
- 4 A sandbox is a right rectangular prism that is 6 ft long and 4 ft wide. The sandbox can hold 48 ft^3 of sand when full. Lisa fills the sandbox $\frac{1}{4}$ full of sand. What is the height of the sand in the sandbox?



LESSON 11

Solving Problems with Volume Formulas *continued*

- 5 Neelam is pouring sand into a clear box to make sand art. The box is a right rectangular prism, and the base of the box is 7 in. by $2\frac{1}{2}$ in. She pours in red sand until the volume of the sand is $26\frac{1}{4}$ in.³. Then she pours in blue sand. Now the volume of the sand is $43\frac{3}{4}$ in.³. How much does the level of the sand rise when Neelam adds the blue sand?
- 6 Alan is a paleontologist who collects dinosaur fossils. He keeps each fossil in a cube-shaped box with edges that are $\frac{1}{2}$ ft long. Alan keeps the boxes in a storage bin. The storage bin is a right rectangular prism that is $2\frac{1}{2}$ ft long, 2 ft wide, and 2 ft tall. How many boxes can Alan keep in the bin?
- 7 Liam buys three identical plastic containers that are right rectangular prisms. One face of each container measures $4\frac{1}{2}$ in. by 2 in. The total volume of the three containers is 135 in.³. How many of these containers can Liam set on a shelf that is 24 in. long with the $4\frac{1}{2}$ in.-by-2 in. faces touching?
- 8 A koi pond is in the shape of a right rectangular prism that is $2\frac{1}{2}$ yd long, 3 yd wide, and 2 yd high. The pond is $\frac{1}{3}$ full of water. What is the volume of the water in the pond?