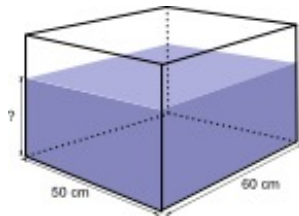


6.G Computing Volume Progression 3

Task

A rectangular tank is 50 cm wide and 60 cm long. It can hold up to 126 ℓ of water when full. If Amy fills $\frac{2}{3}$ of the tank as shown, find the height of the water in centimeters. (Recall that 1 ℓ = 1000 cm³.)



IM Commentary

This is the third in a series of four tasks that gradually build in complexity. The purpose of this series of tasks is to build in a natural way from accessible, concrete problems involving volume to a more abstract understanding of volume. Here, we are given the volume and are asked to find the height. In order to do this, students must know that 1 ℓ = 1000 cm³. This fact may or may not need to be included in the problem, depending on students' familiarity with the units.

Solution

First, find the volume of tank in cubic centimeters:

$$126\ell \times \frac{1000 \text{ cm}^3}{1\ell} = 126 \times 1000 \text{ cm}^3.$$

The height of tank is the volume divided by the length and the width:

$$\frac{126 \times 1000}{50 \times 60} = 42 \text{ cm.}$$

The height of water is $\frac{2}{3}$ the height of the tank:

$$\frac{2}{3} \times 42 = 28.$$

So the height of the water is 28 cm.

