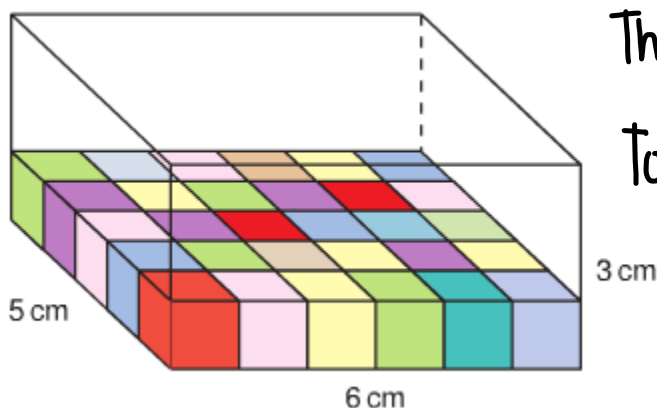


Unit 4: Measuring Prisms and Cylinders

Name: _____

4.5 Volume of a Right Rectangular Prism – Notes

This box is a right rectangular prism. The volume of the box is the number of centimeter cubes the box holds.



$$\text{Base Area} = 6 \times 5 = 30 \text{ cm}^2$$

The box is 3 cm high, so 3 layers fit

$$\text{Total \# of cubes is } 30 \times 3 = 90$$

So, the volume is 90 cm^3 .

↑
90 centimeter cubes fit in the box.

We can use variables to write a formula for the volume of a rectangular prism.

Let A represent the base area and h represent the height.

Then, the volume of a rectangular prism is:

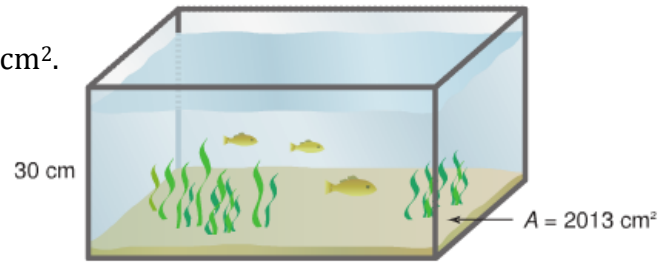
$$V = \text{base area} \times \text{height}$$

↑ distance between two bases.

Volume → $V = Ah$ ^{OR}

base area → A height → h

Example (1): The area of the base of a fish tank is 2013 cm^2 .
The height of the tank is 30 cm .
Find the volume of the fish tank.



$$\begin{aligned} V &= Ah \\ &= (2013)(30) \\ &= 60\,390 \text{ cm}^3 \end{aligned}$$

Example (2): A deck of 54 cards fits in a box shaped like a right rectangular prism.
The box has dimensions 6.5 cm by 9.0 cm by 1.6 cm .
What is the volume of the box?

$$\begin{aligned} V &= Ah \\ &= (6.5 \times 9)(1.6) \\ &= 93.6 \text{ cm}^3 \end{aligned}$$