

7 Volumes of Solids

7.1 Volumes of Prisms

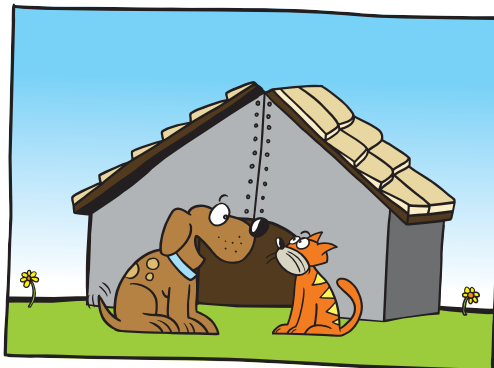
7.2 Volumes of Cylinders

7.3 Volumes of Pyramids

7.4 Volumes of Cones

7.5 Volumes of Composite Solids

7.6 Surface Areas and Volumes of Similar Solids



"I petitioned my owner for a dog house with greater volume."



"And this is what he built for me."

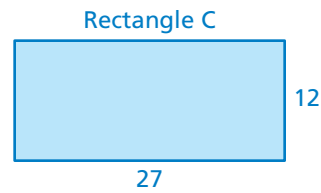
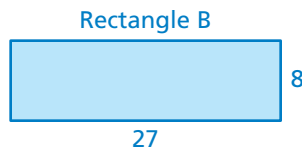
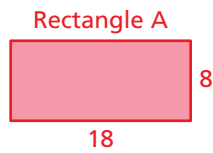


"Do you know why the volume of a cone is one-third the volume of the cylinder with the same height and base?"

What You Learned Before

Identifying Similar Figures

Example 1 Which rectangle is similar to Rectangle A?



Rectangle A and Rectangle B

$$\frac{\text{Length of A}}{\text{Length of B}} = \frac{18}{27} = \frac{2}{3}$$

$$\frac{\text{Width of A}}{\text{Width of B}} = \frac{8}{8} = 1$$

Not proportional

Rectangle A and Rectangle C

$$\frac{\text{Length of A}}{\text{Length of C}} = \frac{18}{27} = \frac{2}{3}$$

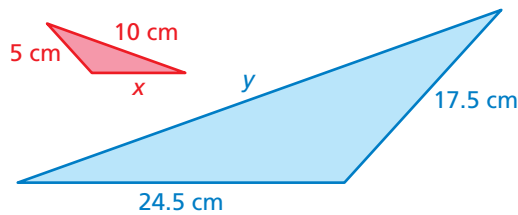
$$\frac{\text{Width of A}}{\text{Width of C}} = \frac{8}{12} = \frac{2}{3}$$

Proportional

So, Rectangle C is similar to Rectangle A.

Finding Measures in Similar Figures

Example 2 The two triangles are similar. Find the value of x .



$$\frac{5}{17.5} = \frac{x}{24.5}$$

$$122.5 = 17.5x$$

$$7 = x$$

Write a proportion.

Use Cross Products Property.

Divide each side by 17.5.

So, x is 7 centimeters.

Try It Yourself

- Construct two more rectangles that are similar to Rectangle A in Example 1.
- Find the value of y in Example 2.

