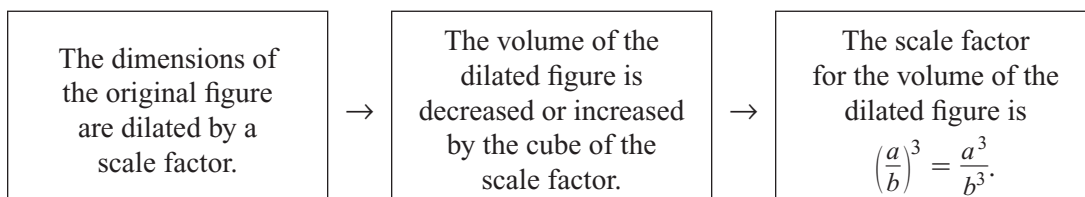




## Objective 8 TEKS 8.10.B Review

### 8.10.B Describe the resulting effect on volume when dimensions of a solid are changed proportionally.

You can use the cube of the scale factor to describe the effect on volume when the dimensions of a solid are changed proportionally.



#### EXAMPLE

The diameter of a sphere is dilated by a scale factor of  $\frac{1}{4}$ . If the sphere has a volume of 900 cubic yards, what will be the volume of the dilated sphere?

$$\left(\frac{1}{4}\right)^3 = \frac{1^3}{4^3} = \frac{1}{64}$$

$$900 \cdot \frac{1}{64} = \frac{900}{64} = 14\frac{1}{16}$$

To find the factor that the volume of the original sphere decreased by, find the cube of the scale factor.

Multiply the volume of the original sphere by the cube of the scale factor.

The volume of the dilated sphere will be  $14\frac{1}{16}$  cubic yards.

#### YOU DO IT

A rectangular box has a volume of 64 cubic feet. If the dimensions of the box are dilated by a scale factor of 2, what will be the volume of the dilated box?

The dimensions of the rectangular box will increase by a scale factor of 2.

The volume of the box will increase by a scale factor of 8.

Find the volume of the dilated box.

$$V = \underline{64} \cdot \underline{8} = \underline{512} \text{ ft}^3$$

The volume of the dilated box is 512 cubic feet.

**Check**  $\frac{\text{Volume of dilated box}}{\text{Volume of original box}} = \frac{\boxed{512}}{\boxed{64}} = \frac{\boxed{8}}{\boxed{1}}$