# 25 Similar Figures

# Example 1

**A picture 10 in. tall and 14 in. wide is to be scaled to 1.5 in. tall to be displayed on a Web page. How wide should the picture be on the Web page for the two pictures to be similar?**

Set up a proportion. Let *w* be the width of the picture on the Web page.

$$\underset{\text{width on Web page}}{\overset{\text{width of a picture}}{\longrightarrow}} \frac{14}{w} = \frac{10}{1.5} \underset{\longleftarrow \text{ height on Web page}}{\overset{\longleftarrow \text{ height of picture}}{}}$$

*width of a picture* ⟶ $\dfrac{14}{w}$ = $\dfrac{10}{1.5}$ ⟵ *height of picture*
*width on Web page* ⟶ ⟵ *height on Web page*

$14 \cdot 1.5 = w \cdot 10$    *Find the cross products.*

$21 = 10w$

$\dfrac{21}{10} = \dfrac{10w}{10}$    *Divide both sides by 10.*

$2.1 = w$

The picture on the Web page should be 2.1 in. wide.

# Example 2

**A painting 40 in. long and 56 in. wide is to be scaled to 10 in. long to be displayed on a poster. How wide should the painting be on the poster for the two pictures to be similar?**

Set up a proportion. Let $w$ be the width of the painting on the Poster.

*width of a painting* ⟶ $\dfrac{56}{w}$ = $\dfrac{40}{10}$ ⟵*length of painting*
*width of poster* ⟶          ⟵*length of poster*

$$56 \cdot 10 = w \cdot 40$$

$$560 = 40w$$

$$\frac{560}{40} = \frac{40w}{40}$$

$$14 = w$$

The painting displayed on the poster should be 14 in. long.

# Similar Figures

**Similar figures** have the same shape, but not necessarily the same size.

**Corresponding sides** of two figures are in the same relative position

**Corresponding angles** are in the same relative position.

# Similar Figures

Illustrate an example of similar figures.

Label the corresponding sides on the illustration.

Label the corresponding angles on the illustration.