Name _____ Date_____

The Unit Rate as the Scale Factor

A rectangular pool in your friend's yard is 150 ft. $\times$ 400 ft. Create a scale drawing with a scale factor of $\frac{1}{600}$. Use a table or an equation to show how you computed the scale drawing lengths.

1. Giovanni went to Los Angeles, California for the summer to visit his cousins. He used a map of bus routes to get from the airport to his cousin's house. The distance from the airport to his cousin's house is 56 km. On his map, the distance is 4 cm. What is the scale factor?

2. Nicole is running for school president. Her best friend designed her campaign poster, which measured 3 feet by 2 feet. Nicole liked the poster so much, she reproduced the artwork on rectangular buttons that measured 2 inches by $1\frac{1}{3}$ inches. What is the scale factor?

3. Find the scale factor using the given scale drawings and measurements below.

   Scale Factor: _____

   Actual Picture

   3 cm

   Scale Drawing

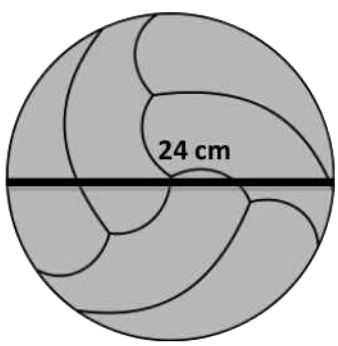
   

   5 cm

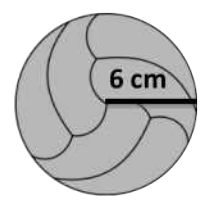
4. Find the scale factor using the given scale drawings and measurements below.

   Scale Factor: _____

   Actual Picture

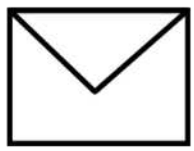
   

   Scale Drawing

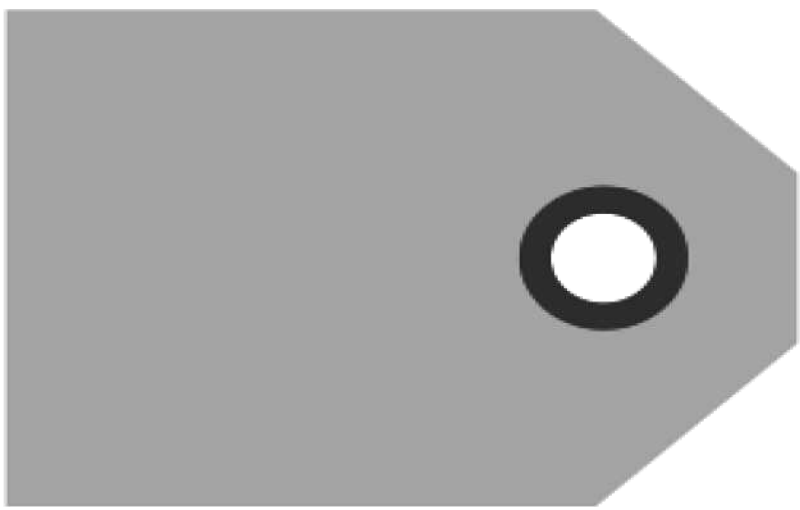
5. Using the given scale factor, create a scale drawing from the actual pictures in centimeters:

   a. Scale factor: 3



1 in.

   b. Scale factor: $\frac{3}{4}$



6. Hayden likes building radio-controlled sailboats with her father. One of the sails, shaped like a right triangle, has side lengths measuring 6 inches, 8 inches and 10 inches. To log her activity, Hayden creates and collects drawings of all the boats she and her father built together. Using the scale factor of $\frac{1}{4}$, create a scale drawing of the sail.

A rectangular pool in your friend's yard is 150 ft. $\times$ 400 ft. Create a scale drawing with a scale factor of $\frac{1}{600}$. Use a table or an equation to show how you computed the scale drawing lengths.

Actual Length	*Scale Length*
150 *ft.*	150 *ft. multiplied by* $\frac{1}{600} = \frac{1}{4}$ *ft., or* 3 *in.*
400 *ft.*	400 *ft. multiplied by* $\frac{1}{600} = \frac{2}{3}$ *ft., or* 8 *in.*

8 *in.*

3 *in.*

1. Giovanni went to Los Angeles, California for the summer to visit his cousins. He used a map of bus routes to get from the airport to his cousin's house. The distance from the airport to his cousin's house is 56 km. On his map, the distance was 4 cm. What is the scale factor?

   The scale factor is $\frac{1}{1{,}400{,}000}$. *I had to change km to cm or cm to km or both to meters in order to determine the scale factor.*

2. Nicole is running for school president. Her best friend designed her campaign poster, which measured 3 feet by 2 feet. Nicole liked the poster so much, she reproduced the artwork on rectangular buttons that measured 2 inches by $1\frac{1}{3}$ inches. What is the scale factor?

   The scale factor is $\frac{2}{3}$.

3. Find the scale factor using the given scale drawings and measurements below.

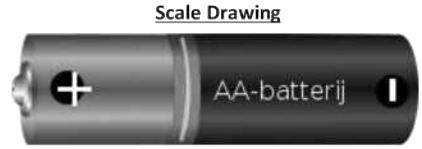
   Scale Factor: $\frac{5}{3}$

   Actual

   3 cm

   Scale Drawing

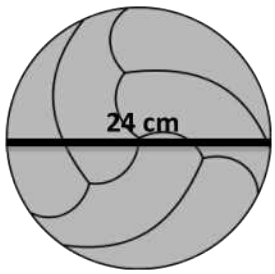
   

   5 cm

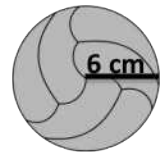
4. **Find the scale factor using the given scale drawings and measurements below.**

Scale Factor: ___$\frac{1}{2}$____ ***Compare diameter to diameter or radius to radius*

Actual Picture



Scale Drawing



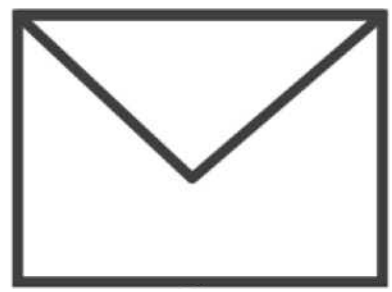
5. **Using the given scale factor, create a scale drawing from the actual pictures in centimeters:**

a. **Scale factor: 3**

Small Picture : 1 in.

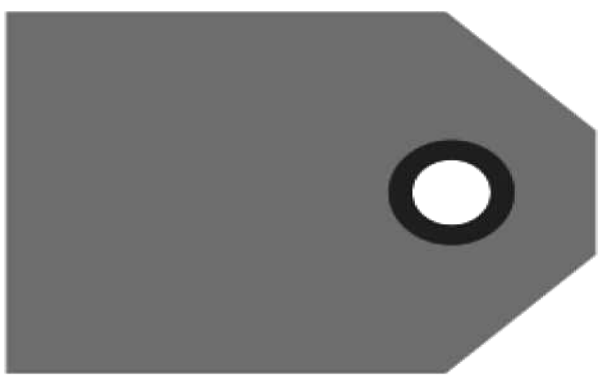
Large Picture: 3 in.

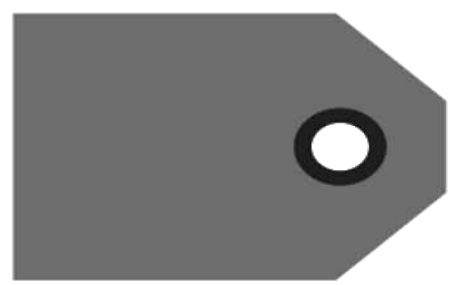
1 in.



3 in.

b. **Scale factor:** $\frac{3}{4}$





Actual Drawing Measures: 4 in.

Scale Drawing Measures: 3 in.

6. **Hayden likes building radio-controlled sailboats with her father. One of the sails, shaped like a right triangle, has side lengths measuring 6 inches, 8 inches, and 10 inches. To log her activity, Hayden creates and collects drawings of all the boats she and her father built together. Using the scale factor of $\frac{1}{4}$, create a scale drawing of the sail.**

   A triangle with sides 1.5 inches, 2 inches, and 2.5 inches is drawn.

Scaffolding:

- Extension: Students can enlarge an image they want to draw or paint by drawing a grid using a ruler over their reference picture and drawing a grid of equal ratio on their work surface. Direct students to focus on one square at a time until the image is complete. Have students compute the scale factor for the drawing.