

## FREQUENTLY ASKED Questions

**Q:** What strategies can you use to determine if two polygons are similar?

**A:** You can measure the side lengths to see if all pairs of corresponding sides are enlarged or reduced by the same scale factor. If they are, the ratios of all corresponding sides will be equal. Measure the corresponding angles to confirm that they are equal. If the corresponding angles are equal and the ratios of corresponding sides are equal, then the shapes are similar.

**Q:** How can you calculate the missing dimension in a pair of similar shapes?

**A1:** You can calculate the scale factor using corresponding side lengths that are given. Then, use the scale factor to calculate the missing dimension in another pair of corresponding sides.

For example, the ratio of lengths of corresponding sides in  $ABCD$  and  $EFGH$  is  $1 : 2$ . The scale factor for the enlargement is 2.

The side that is  $x$  metres long must be twice as long as the corresponding side, so  $x = 6$  m.

You can also represent the scale factor as a reduction of the larger shape to a smaller shape. In that case the scale factor is  $\frac{1}{2}$ .

**A2:** You can calculate the ratio of two side lengths in one of the shapes, and then set it equal to the ratio of the corresponding sides in the other shape and solve.

$$\begin{aligned} 1 : 3 &= 2 : x \\ x &= 6 \end{aligned}$$

**A3:** You can calculate the ratios of two side lengths within each shape as fractions.

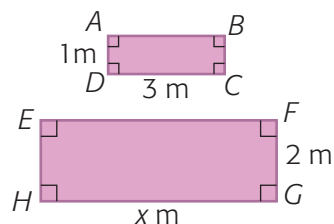
$$\begin{aligned} \frac{1}{3} &= \frac{2}{x} \\ x &= 6 \end{aligned}$$

## Study Aid

- See Lesson 3.2, Examples 1, 2, and 3.
- Try Mid-Chapter Review questions 1, 2, 3, and 6.

## Study Aid

- See Lesson 3.3, Examples 1, 2, and 3.
- Try Mid-Chapter Review questions 4 and 5.



## Practice

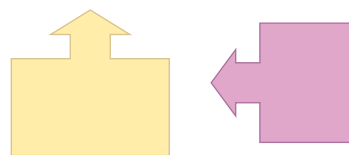
### Lesson 3.1

1. Which images look like they are the same shape but are a different size?

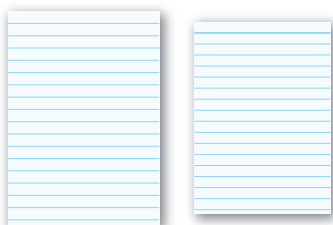
a)



c)



b)



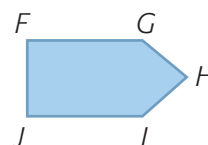
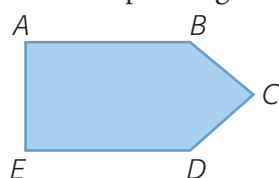
d)



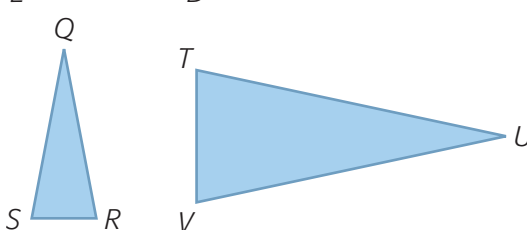
### Lesson 3.2

2. List the corresponding sides and angles in these similar polygons.

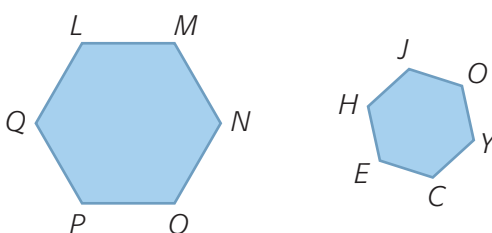
a)



b)

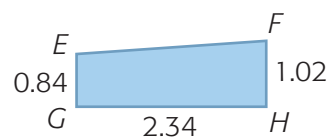
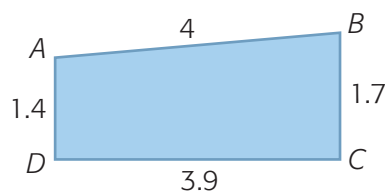


c)



3. Describe the relationships between similar polygons.

4. Calculate the length of  $EF$ .

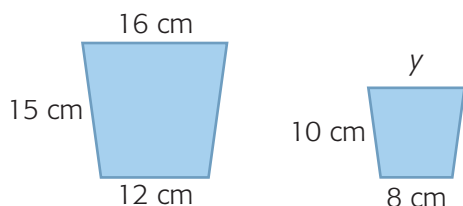


**Lesson 3.3**

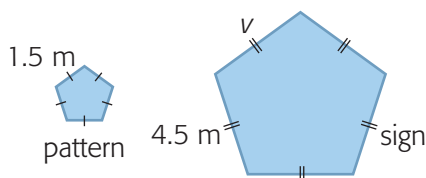
5. a) Arianna is enlarging a banner for the sports banquet at her school. How long should the larger banner be?



- b) Steve is cutting glass for his project. He is reducing the pattern to fit a smaller frame. How long will the top of the glass be?

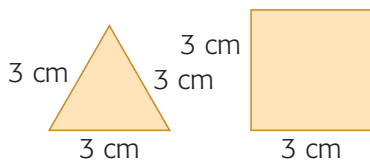


- c) A sign shop is creating a sign for the Penta Group from a pattern emailed by the company. What scale factor is the sign shop using?

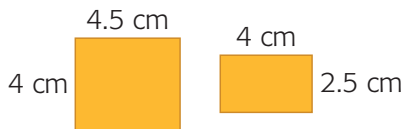


6. Is each pair of shapes similar? If so, determine the scale factor. If not, explain why not.

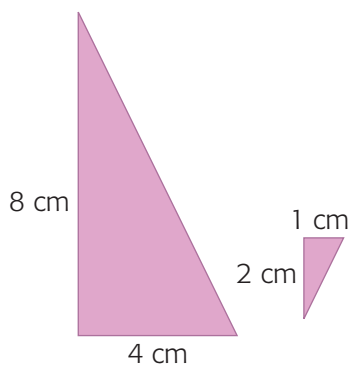
a)



c)



b)



d)

