

# Challenge Problems

9.4

NAME \_\_\_\_\_

Module 9 Characteristics of Geometric Shapes  
Lesson 4 Similar Polygons

## Set 1

1 Give an example to prove that the following statement is not sufficient to prove quadrilaterals are similar: “*All the corresponding angles of two quadrilaterals are congruent.*”

2 Give an example to prove that the following statement is not sufficient to prove quadrilaterals are similar: “*All the corresponding sides of two quadrilaterals are proportional.*”

## Set 2

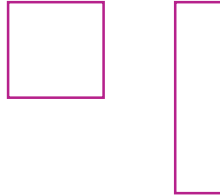
1 A three-by-three square is shown. Draw the figure with the width doubled. Then, draw the figure with both the length and the width doubled. Compare the areas to the area of the original figure. Then, determine if a 200% enlargement of a photo doubles the area of the photo.



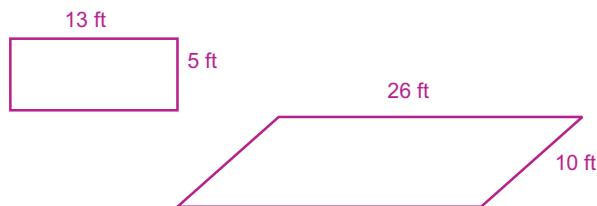
## Possible Answers

### Set 1

1. This square and rectangle both have corresponding angles that all equal  $90^\circ$  degrees, yet the figures are not similar because they are different shapes.



2. This rectangle and parallelogram have both sets of corresponding sides in a ratio of one to two. However, the figures are not similar because they are different shapes.



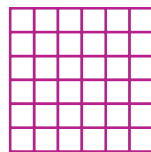
$$\frac{13}{26} = \frac{5}{10} = \frac{1}{2}$$

### Set 2

1. With just the width doubled, the area doubled from nine to 18. With both the width and the length doubled, the area quadrupled. It went from nine to 36. Doubling both the width and the length does not double the area; it quadruples it, so a 200% enlargement of a photo does not double the area.



$$A = 18 \text{ sq. units}$$



$$A = 36 \text{ sq. units}$$