



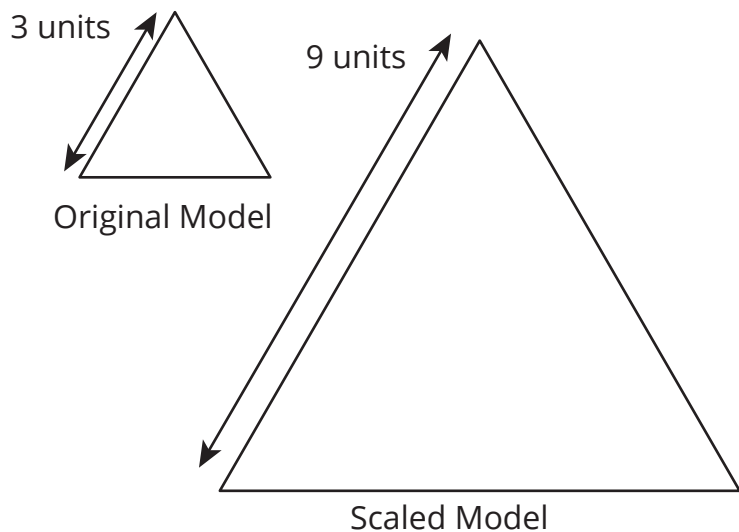
# Scaling Regular Figures

## Answers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

To scale means to shrink or stretch side length by multiplying it. The change can be seen from one model figure to another.



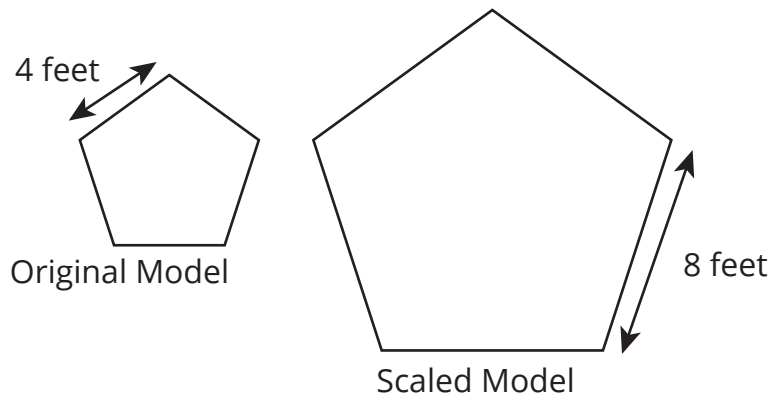
The scale of these two figures can be expressed as:  
 $3 \text{ by } (?) = 9$  or,  $3 \times (?) = 9$

Solving the equation shows:  
 $3 \times 3 = 9$ , hence:  
3 is scaled by 3 to equal 9

We can also say:  
3 is scaled by a factor of 3 to equal 9

Inversely, we can say:  
 $9 \times 1/3 = 3$ , 9 is scaled by  $1/3$  to equal 3

Directions: Use the diagram below to answer the following questions.



### Exercises:

1. What is the Original Model scaled by, to create the Scaled Model?

[  $4 \times (?) = 8$ ;  $(?) = 4 \times 2 = 8$ ; The Original Model is scaled by 2 ]

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2. What is the Scaled Model scaled by, to create the Original Model?

[  $8 \times (?) = 4$ ;  $(?) = 4/8$ ; The Original Model is scaled by  $4/8$  (or  $1/2$ ) ]

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3. Describe a pentagon where of the Scaled Model above, is scaled by a factor of 3.

[ the Scaled Model has 8 unit lengths;  $8 \text{ units} \times 3 = 24 \text{ units}$ ]; hence you'd have a regular pentagon with 24 unit lengths ]

4. Describe a pentagon where of the Original Model above, is scaled by a factor of 4?

[ the Scaled Model has 4 unit lengths;  $4 \text{ units} \times 4 = 16 \text{ units}$ ]; hence you'd have a regular pentagon with 16 unit side lengths ]

5. Describe a pentagon, when scaled by 2, makes the Original Model, shown above.

$(?) \times 2 = 4 \text{ feet unit lengths for the regular pentagon}$ ;  $(?) = 2 \text{ unit lengths}$ , so a regular pentagon with 2 unit lengths, when scaled (or factored) by 2, makes the Regular Model.

**Connections:** What does it mean for something to be at scale?

ANSWERS MAY VARY BUT CAN INCLUDE: something is at scale when it's sides are factored by an amount to create another model/version

(Explain your answer with pictures, words, and numbers.)