

Introduction to Similar Shapes

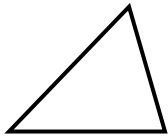
Name:

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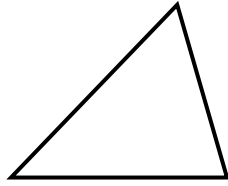
Period:

In each of the following sets of shapes, numbers 1 through 5, two or more, but NOT ALL, are defined as being *similar*. Circle the letters of the shapes you believe are similar in the group. Be prepared to explain your choices.

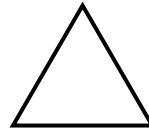
1.



A



B

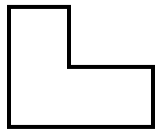


C

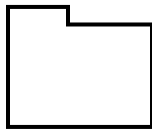


D

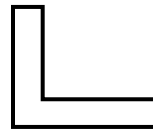
2.



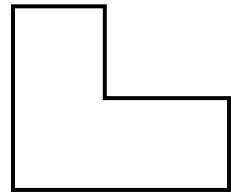
A



B

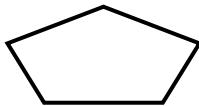


C

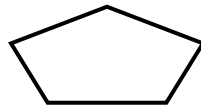


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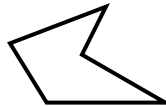
3.



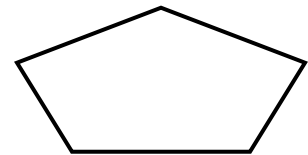
A



B

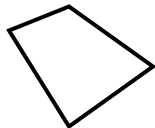


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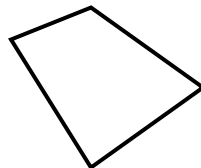


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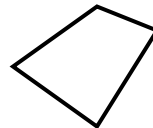
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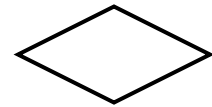
A



B

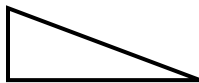


C

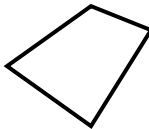


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5.



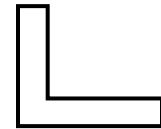
A



B



C

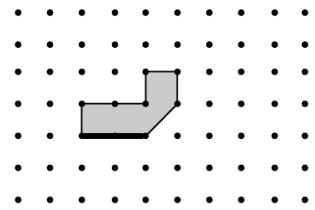


D

6. Now that you have considered "similarity" of shapes in each of the groups, in your own words, describe what you believe makes one shape similar to another.

Today you will extend your study of ratios by looking at enlargements and reductions of geometric figures. Think of a copy machine and what it does to a picture when the “enlargement” button is selected. The machine makes *every length* of the picture larger or smaller by multiplying it by the same number, called the **multiplier**. That multiplier is also called the **scale factor**.

4-1 Karen is learning how to use the copy machine at her school’s main office and decides to scale the figure shown below by 300%. She wonders what will happen to the figure.



- a. Copy the original figure on your dot paper and label the length of each side. Then scale the figure by 300%. That is, make another copy of the figure and multiply each of the side lengths by 3. Label the length of each new side. What do you notice about the two figures? Note the sides and the angles.
- b. Refer to the darkened side on the original figure. Then darken the corresponding (matching) side on the copy. What is the length of this side on the original figure? What is the length of this side on the copy? Write and simplify the ratio of this pair of sides in the order $\frac{\text{copy}}{\text{original}}$.
- c. Choose another pair of corresponding sides in the figures. Write and simplify the ratio of these sides in the order $\frac{\text{copy}}{\text{original}}$.
- d. Predict the simplified ratio you would get for another pair of corresponding sides of the two figures. Now test your prediction. Write and simplify the ratio for the remaining pairs of corresponding sides. Was your prediction correct?
- e. Compare your simplified ratios from parts (b), (c), and (d). What do you notice? How do your answers relate to the scale factor of 300%?

