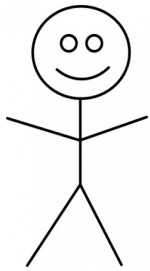
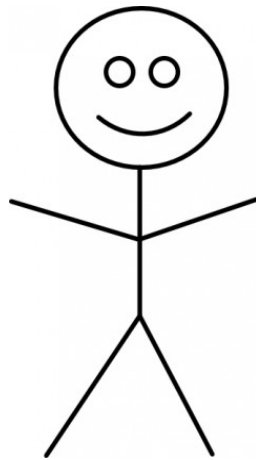


Similar Figures Same shape, Different size

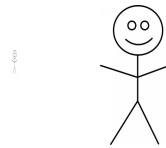
Original



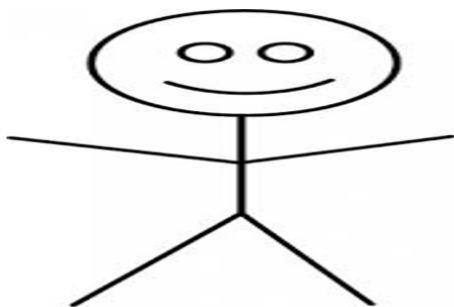
Enlargement



Reduction

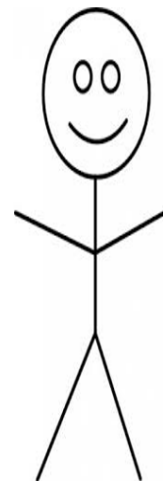


All the sides grow at the same rate.

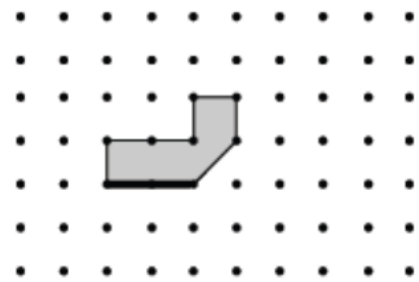


NOT similar

"Stretched Out"

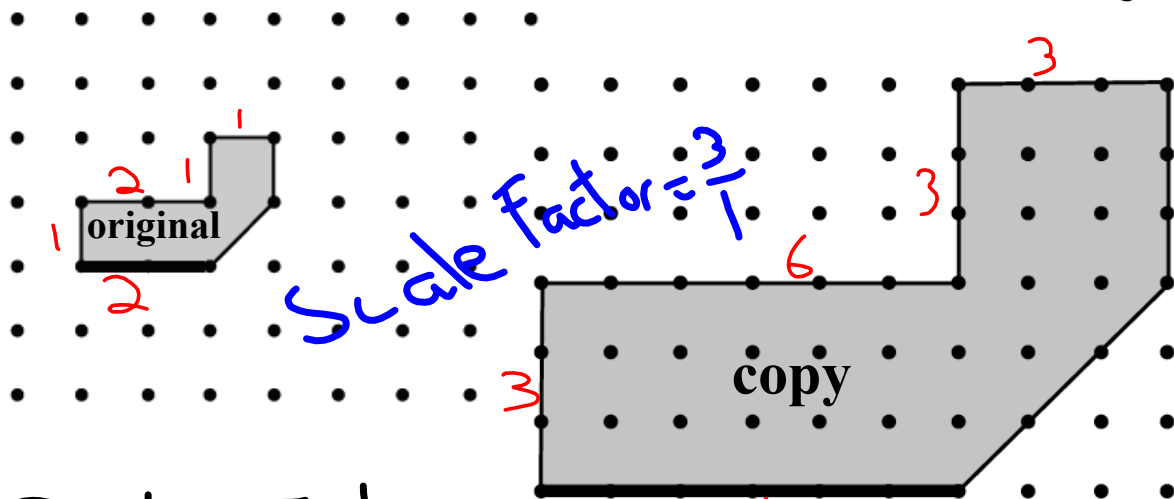


Karen is learning how to use the copy machine at her school's main office and decides to scale the figure shown at right by 300%. She wonders what will happen to the figure.



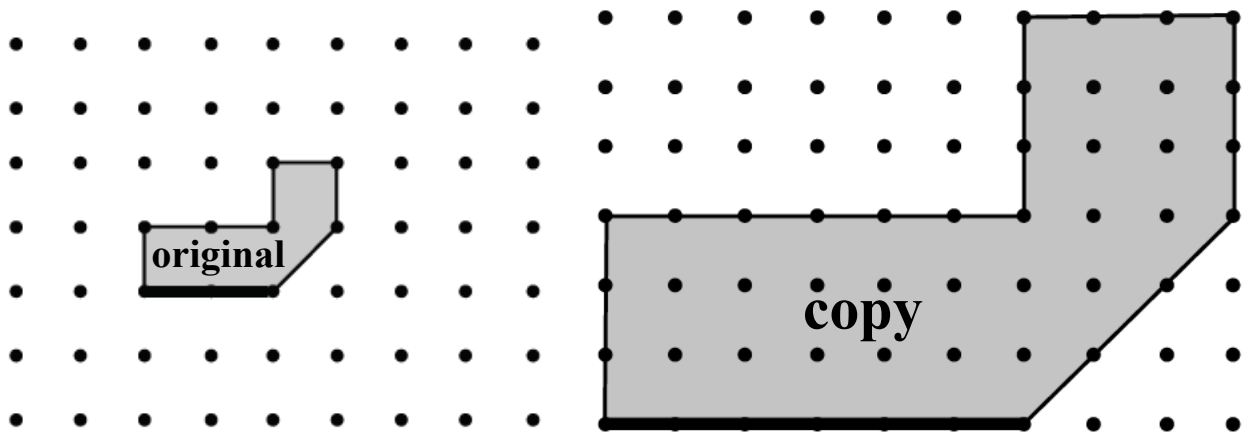
Copy the original figure on your dot paper and label the length of each side. Then scale the figure by 300%. That is, make another copy of the figure and multiply each of the side lengths by 3. Label the length of each side. What do you notice about the two figures? Note the sides and angles.

300% enlargement



$$\text{Scale Factor} = \frac{\text{Copy}}{\text{Original}} = \frac{6}{2} = \frac{3}{1}$$

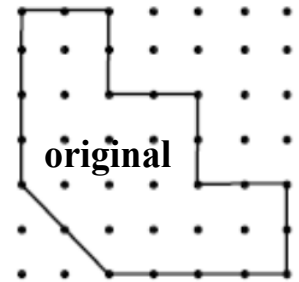
300% enlargement



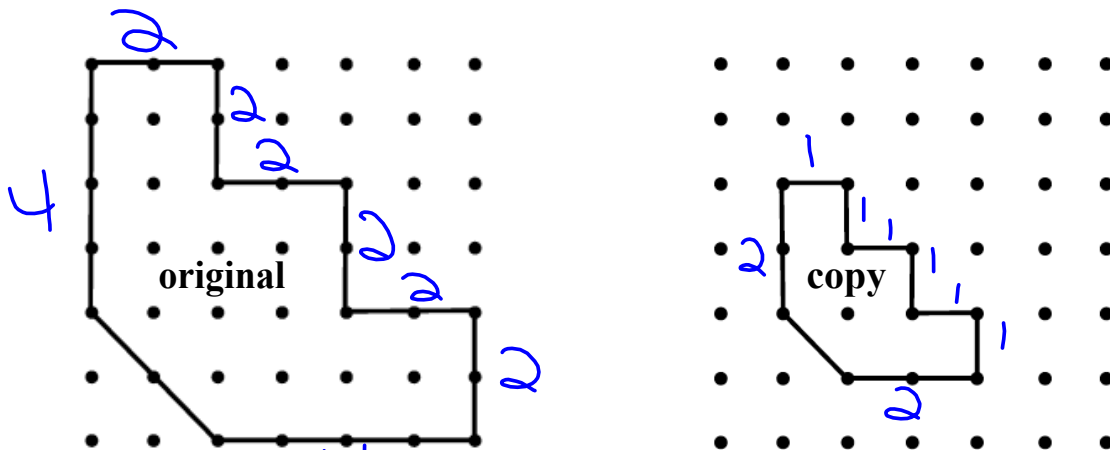
- b. Refer to the darkened side on the original figure. Then darken the **corresponding** (matching) side on the copy. What is the length of this side on the original figure? What is the length of this side on the copy? Write and simplify the ratio of this pair of sides in the order $\frac{\text{copy}}{\text{original}}$. $\frac{3}{1}$
- 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?

Scale Factor =

Karen wants to try scaling the figure shown at right by 50%. What do you think will happen to the figure?



- a. Sketch the figure shown at right and make a copy of the figure scaled by 50% on your dot paper. What is the same about the copy and the original? What is different?



Scale Factor = $\frac{1}{2}$

Scale Factor > 1

Enlargement

Scale Factor < 1

Reduction

Examine the figure at right.

- Use dot paper to sketch the original figure.
- With your team, choose a scale factor that will make the figure larger. Sketch the copy. What was your scale factor? What is the ratio of the corresponding sides? How do the angles compare?
- With your team, choose a scale factor that will make the figure smaller. Sketch the copy. What was your scale factor? What is the ratio of the corresponding sides? How do the angles compare?

