Assignment

Write

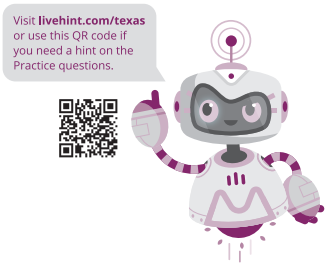
In your own words, describe all of the ways you can tell whether two figures are *similar*. Use examples to illustrate your description.

Remember

Dilations are transformations that produce figures that are the same shape as the original figure, but not the same size. Each point on the original figure is moved along a straight line, and the straight line is drawn from a fixed point known as the *center of dilation*. The distance each point moves is determined by the scale factor used.

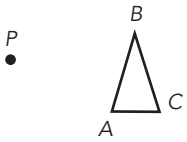
The *scale factor* is the ratio of the distance of the new figure from the center of dilation to the distance of the original figure from the center of dilation.

Practice

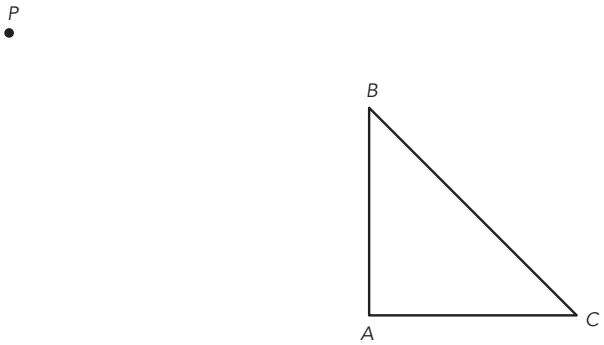


1. Dilate each triangle with P as the center of dilation and the given scale factor.

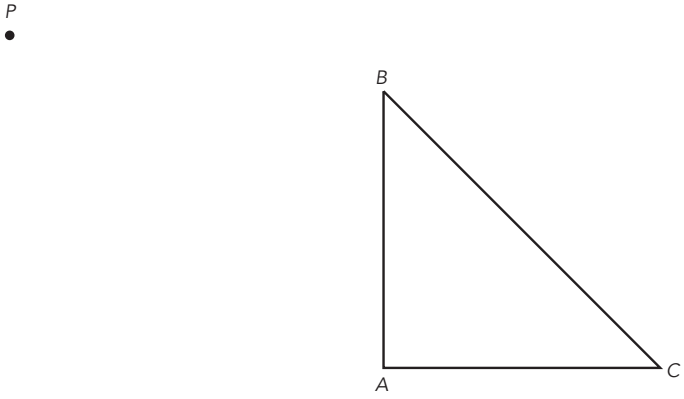
   a. Scale factor of 3



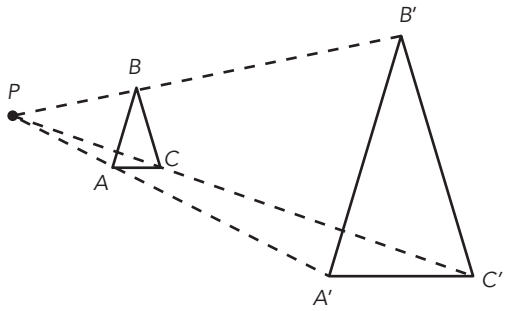
   b. Scale factor of $\frac{1}{3}$



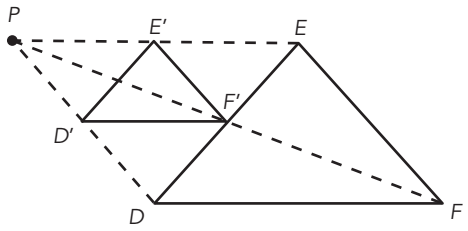
   c. Scale factor of $\frac{1}{4}$



2. The triangles in each pair are similar. Identify the congruent corresponding angles and the corresponding proportional side lengths.
   a. Triangle *ABC* is similar to Triangle *A′B′C′*.



   b. Triangle *DEF* is similar to Triangle *D′E′F′*.



3. Natasha has a photo of a lasagna dish she made, which she wants to post to various websites. The original image has a width of 300 pixels and a height of 450 pixels. Consider each set of new dimensions or scale percents that show adjustments to this original image. Describe how the image changed and whether the new image is similar to the original. Show your work and explain your reasoning.
   a. New image: 360 pixels width, 540 pixels height
   b. New image: 35% width, 35% height
   c. New image: 150 pixels width, 150 pixels height

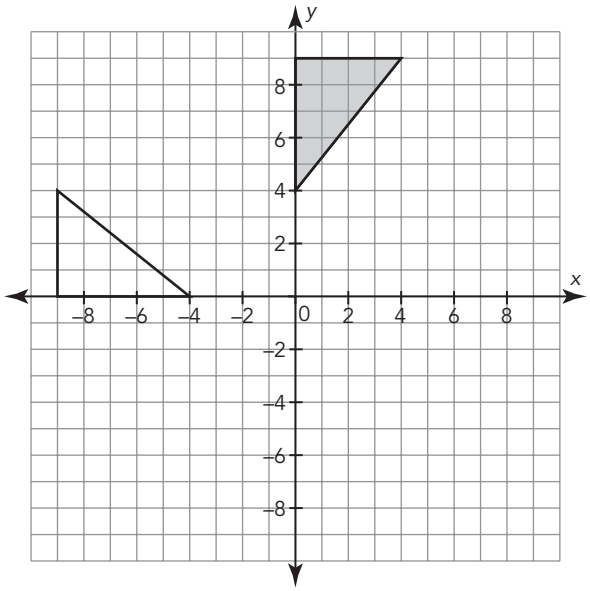
Stretch

What happens if you dilate a figure by a negative scale factor? Use examples to explain your reasoning and justify your answer.

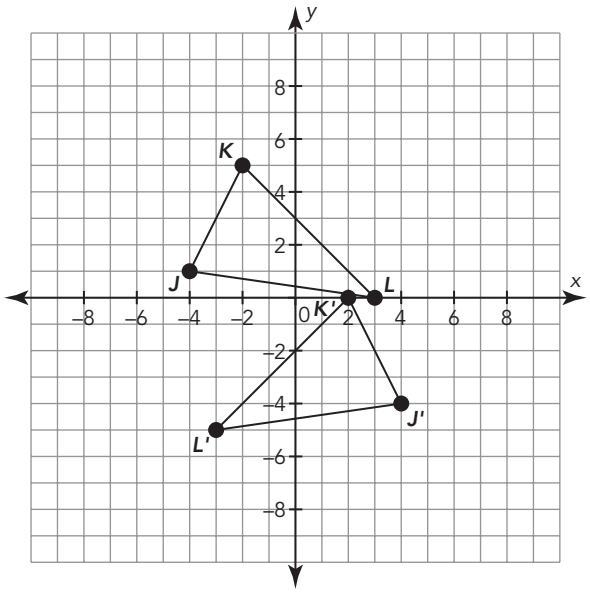
Review

1. Describe a sequence of transformations that exhibits the congruence between each pair of figures.

a.

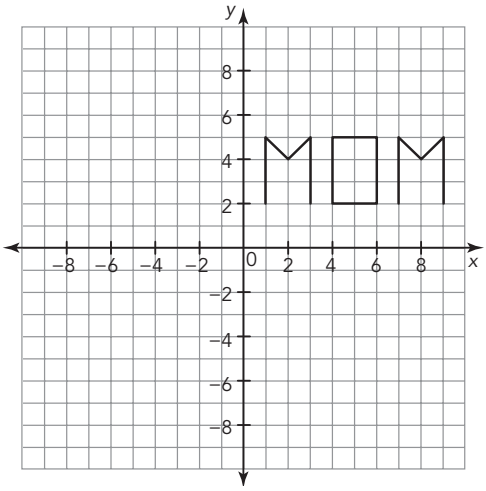


b.



2. Use what you know about reflections to answer each question.

a. Reflect the word MOM across the *y*-axis. Is it still a word?



b. The coordinates of the vertices of a hexagon are given. Write the coordinates of the hexagon reflected across the *y*-axis (Image 1) and across the *x*-axis (Image 2).

Pre-Image	Image 1	Image 2
A (1, 6)		
B (3, 4)		
C (5, 6)		
D (5, 4)		
E (3, 2)		
F (1, 4)		

3. Calculate the circumference and area of a circle with the given measure. Use 3.14 for π.

a. radius = 3 cm

b. diameter = 4 ft