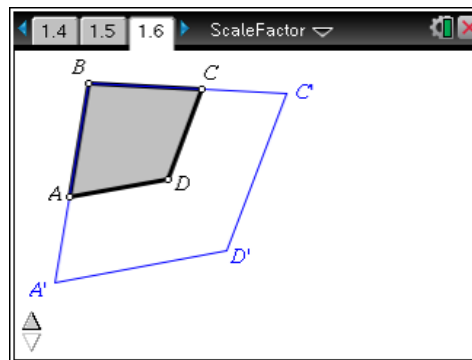




Problem 1 – Enlargements

Explore the diagram on page 1.3. Then, look at the diagram on page 1.6, also shown here.



1. Estimate the scale factor used to create $A'BC'D'$ from $ABCD$.
2. What is the actual scale factor?
3. What is the ratio of the perimeter of $A'BC'D'$ to the perimeter of $ABCD$?

To dilate a figure, select the scale factor, center of dilation, and figure that is to be dilated.

- Dilate the figure on page 1.9 by a scale factor of 2 and record the ratio of the perimeters and areas below.
- Change the scale factor to 3 and record the new ratios.
- Then, change the scale factor to 1.5 and again record the ratios.

Scale Factor:	2	3	1.5
Ratio of Perimeters:			
Ratio of Areas:			

Regarding scale factors and enlargements, what can you conclude about the ratio of perimeters and the ratio of areas?

Problem 2 – Reductions

On page 2.1, construct a hexagon and dilate it by a factor of 0.5. Measure the perimeter and area of both figures and record the ratios below. Change the scale factor to 0.3 and record the new ratios for perimeter and area. Then, do the same for a scale factor to 0.7.

Scale Factor:	0.5	0.3	0.7
Ratio of Perimeters:			
Ratio of Areas:			

Regarding scale factors and reductions, what can you conclude about the ratio of perimeters and the ratio of areas?



Advance to page 2.4. Use the *Scratchpad* to help answer these questions.

1. A figure with an area of 7.5 square units is dilated so that the area of the image is 91.875 square units. Find the scale factor used in the dilation.
2. A figure with a perimeter of 30 feet and area of 56 square feet is dilated using a scale factor of 3.25. What is the perimeter and area of the enlarged figure?
3. A figure with a perimeter of 31.6 centimeters is dilated so that the perimeter of the image is 6.32 centimeters. Find the scale factor used in the dilation.
4. A figure with a perimeter of 4.8 inches is dilated so that the perimeter of the image is 21.6 inches. Find the scale factor used in the dilation.
5. The area of a figure is 21 square units. It is dilated using a scale factor of 0.5. What is the area of the image?

Problem 3 – Extension

On page 3.2, you will see two figures. Dilate the figures by each of the scale factors on the page. Use the labeled vertex as the center of dilation.

What can you conclude about dilations with a negative scale factor?