

ACTIVITY 8.7

Using Technology

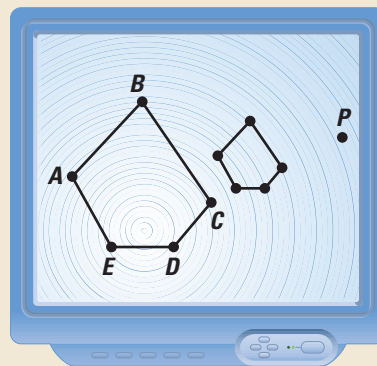
Geometry Software Activity for use with Lesson 8.7

Exploring Dilations

You can use geometry software to explore properties of dilations.

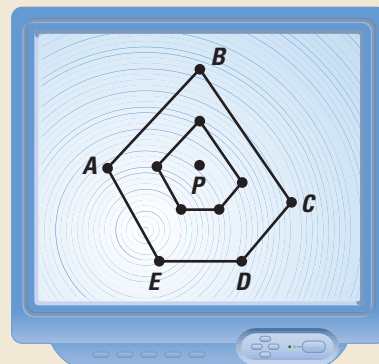
► CONSTRUCT

- 1 Draw a pentagon and label it $ABCDE$.
- 2 Draw a point outside the polygon. Label it P .
- 3 Dilate the polygon using a scale factor of $\frac{1}{2}$ and center P . Label the image $A'B'C'D'E'$.



► INVESTIGATE

1. Measure AP and $A'P$ and calculate the ratio $\frac{AP}{A'P}$. What do you notice?
2. Measure AB and $A'B'$ and calculate the ratio $\frac{AB}{A'B'}$. What do you notice?
3. Drag point P to several locations outside $ABCDE$. Do the ratios you found in Exercises 1 and 2 change?
4. Drag point P to several locations inside $ABCDE$. What do you notice about the position of $A'B'C'D'E'$?
5. Determine the areas of $ABCDE$ and $A'B'C'D'E'$. Calculate the ratio of the area of $ABCDE$ to the area of $A'B'C'D'E'$.



► CONJECTURE

6. Make a conjecture about how the area of a polygon and the area of its image after a dilation are related to the scale factor of the dilation. Test your conjecture using a different polygon and scale factor.

EXTENSION

CRITICAL THINKING Suppose a polygon is dilated with scale factor x and then the image is dilated with scale factor y . What scale factor could you use to dilate the original polygon to the final polygon? Explain.

STUDENT HELP



Visit our Web site www.mcdougallittell.com to see instructions for several software applications.