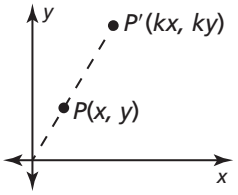
Name_____ Date_____

4.5 Notetaking with Vocabulary (continued)

Coordinate Rule for Dilations

If $P(x, y)$ is the preimage of a point, then its image after a dilation centered at the origin $(0, 0)$ with scale factor k is the point $P'(kx, ky)$.

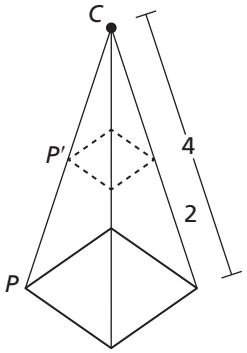


Notes:

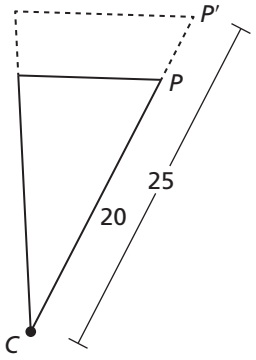
Extra Practice

In Exercises 1–3, find the scale factor of the dilation. Then tell whether the dilation is a *reduction* or an *enlargement*.

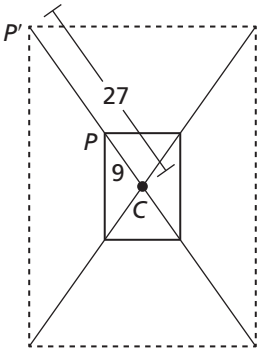
1.



2.

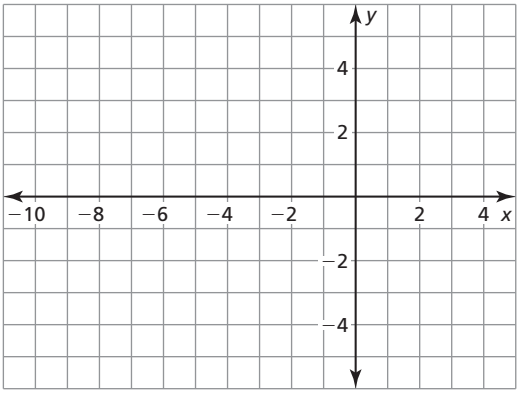


3.



In Exercises 4 and 5, graph the polygon and its image after a dilation with scale factor *k*.

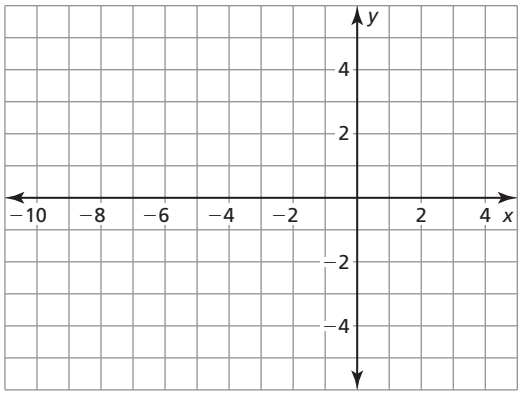
4. $A(-3, 1), B(-4, -1), C(-2, -1); k = 2$



Name _____ Date _____

4.5 Notetaking with Vocabulary (continued)

5. $P(-10, 0)$, $Q(-5, 0)$, $R(0, 5)$, $S(-5, 5)$; $k = \frac{1}{5}$



In Exercises 6 and 7, find the coordinates of the image of the polygon after a dilation with scale factor *k*.

6. $A(-3, 1)$, $B(-4, -1)$, $C(-2, -1)$; $k = -6$

7. $P(-8, 4)$, $Q(20, -8)$, $R(16, 4)$, $S(0, 12)$; $k = -0.25$

8. You design a poster on an 8.5-inch by 11-inch paper for a contest at your school. The poster of the winner will be printed on a 34-inch by 44-inch canvas to be displayed. What is the scale factor of this dilation?

9. A biology book shows the image of an insect that is 10 times its actual size. The image of the insect is 8 centimeters long. What is the actual length of the insect?