

Dilations

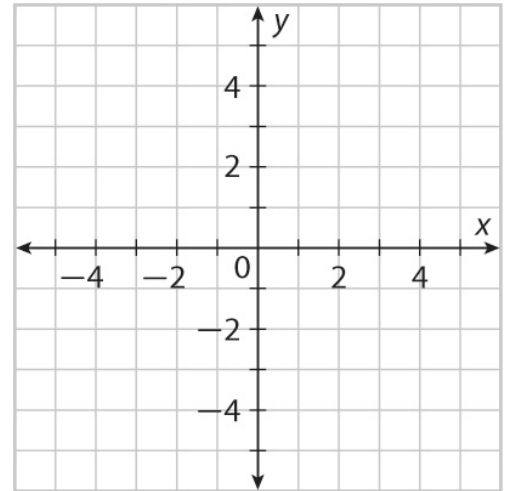
Practice and Problem Solving: A/B

For Problems 1 and 2, find the coordinates of the image point using the coordinate notation. Plot and label the pre-image and the image. Use the graph to determine the scale factor.

1. $D(x, y) \rightarrow (1.5x, 1.5y)$
 $G(1, -2), H(1, -4), J(4, -2)$

$G'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}), H'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}), J'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

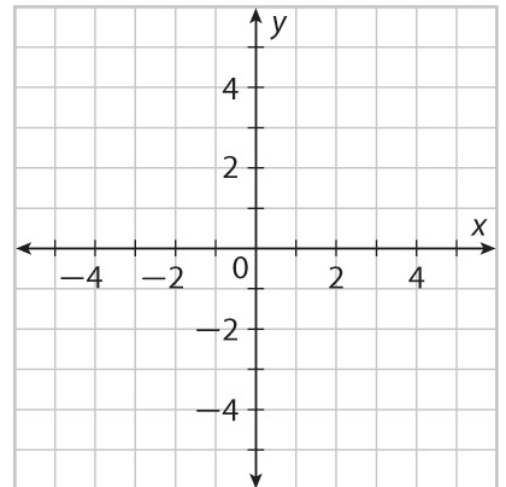
Scale factor:



2. $D(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$
 $L(-3, 3), M(3, 6), N(3, -3)$

$L'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}), M'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}), N'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Scale factor:



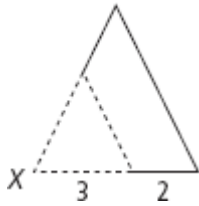
For Problems 3–5, use your graphs for Problems 1 and 2.

3. If you drew lines $\overline{GG'}$, $\overline{HH'}$, and $\overline{JJ'}$ on the graph for Problem 1, where would the lines intersect? $(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ This point is called the _____ of _____.
4. If you drew lines $\overline{LL'}$, $\overline{MM'}$, and $\overline{NN'}$ on the graph for Problem 2, where would the lines intersect? $(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
5. Fill in the lengths of the segments in Problem 1.

$$\frac{G'H'}{GH} = \frac{\square}{\square} = \underline{\hspace{1cm}} \qquad \frac{J'G'}{JG} = \frac{\square}{\square} = \underline{\hspace{1cm}}$$

In Exercises 6-9, the solid-line figure is the image after a dilation of the dashed-line figure. The labeled point is the center of dilation. Find the scale factor of the dilation. Then tell whether the dilation is a reduction or an enlargement.

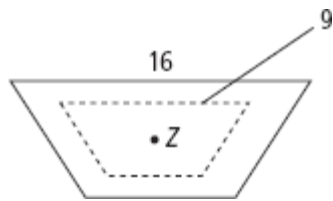
6.



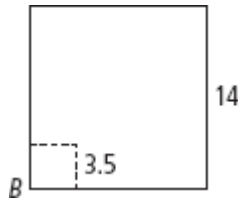
7.



8.

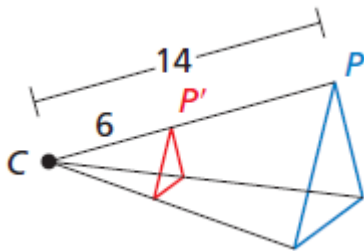


9.

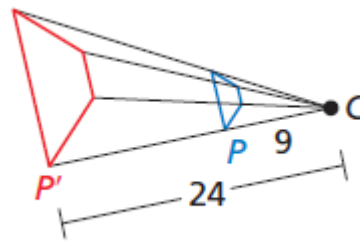


In Exercises 10 – 13, find the scale factor of the dilation. Then tell whether the dilation is a *reduction* or an *enlargement*.

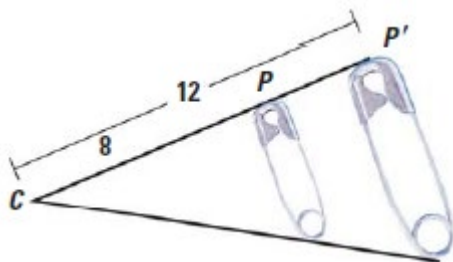
10.



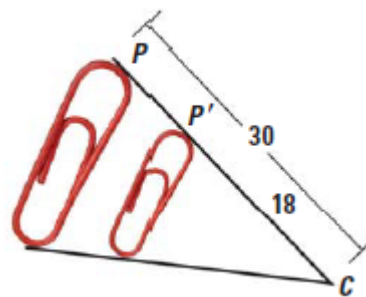
11.



12.

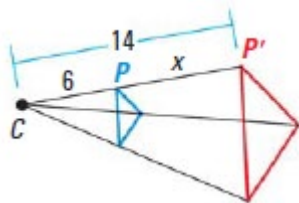


13.

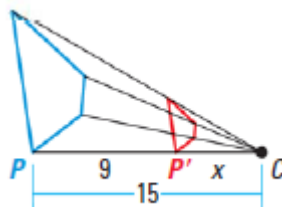


In Exercises 14-15, find the scale factor. Tell whether the dilation is a *reduction* or an *enlargement*. Find the value of x .

14.

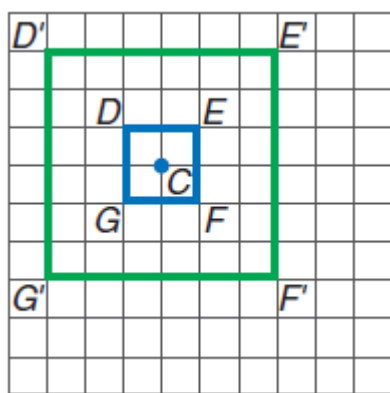


15.

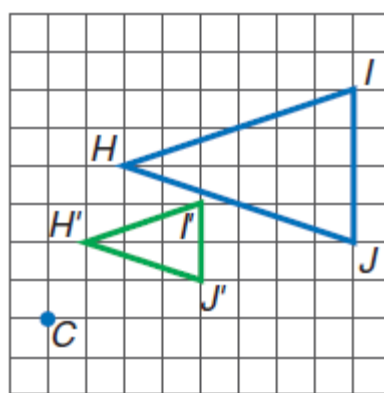


In Exercises 16 – 17, find the scale factor of the dilation. Then tell whether the dilation is a *reduction* or an *enlargement*.

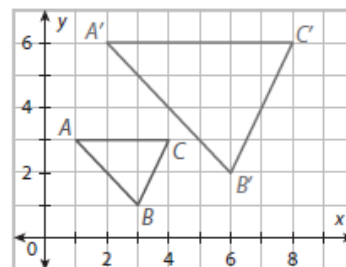
16.



17.

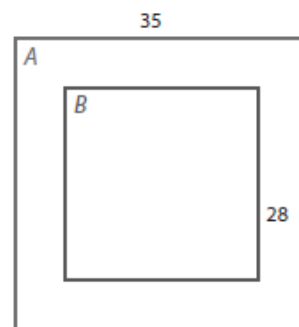


4. Is the scale factor of the dilation of $\triangle ABC$ equal to $\frac{1}{2}$? Explain.



5. Square A is a dilation of square B .
What is the scale factor?

- a. $\frac{1}{7}$
- b. $\frac{4}{5}$
- c. $\frac{5}{4}$
- d. 7
- e. $\frac{25}{16}$



9. Draw an image of $WXYZ$. The center of the dilation is O , and the scale factor is 2.

