

LESSON 6.7 For use with pages 408–415

State whether a dilation using the scale factor k results in a reduction or an *enlargement* of the original figure.

1. $k = 3$

2. $k = \frac{1}{3}$

3. $k = \frac{5}{4}$

4. $k = 0.93$

A and B are the endpoints of \overline{AB} . Complete the coordinates of C and D , the endpoints of the image after a dilation of scale factor k .

5. $A(1, 1), B(3, 1), k = 2$

$$(x, y) \rightarrow (2x, 2y) \quad A(1, 1) \rightarrow C(\underline{\hspace{2cm}}, \underline{\hspace{2cm}}) \quad B(3, 1) \rightarrow D(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$$

6. $A(4, 4), B(8, 12), k = \frac{3}{4}$

$$(x, y) \rightarrow \left(\frac{3}{4}x, \frac{3}{4}y \right) \quad A(4, 4) \rightarrow C(\underline{\hspace{2cm}}, \underline{\hspace{2cm}}) \quad B(8, 12) \rightarrow D(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$$

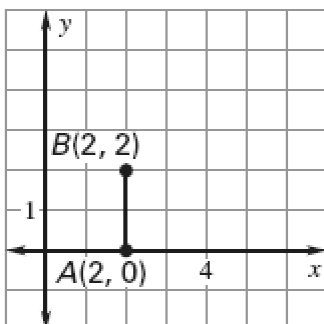
7. $A(0, 0), B(-3, 2), k = 5$

$$(x, y) \rightarrow (5x, 5y) \quad A(0, 0) \rightarrow C(\underline{\hspace{2cm}}, \underline{\hspace{2cm}}) \quad B(-3, 2) \rightarrow D(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$$

Use the scale factor to find the coordinates of A' and B' . Then draw a dilation of the figure with the given vertices using the given scale factor k .

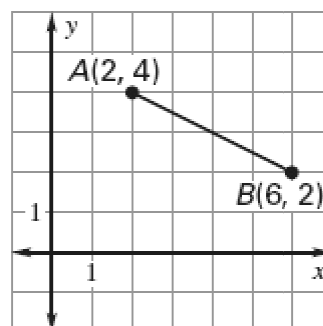
8. $A(2, 2), B(2, 0); k = 2$

$$A'(\underline{\hspace{2cm}}, \underline{\hspace{2cm}}) \quad B'(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$$



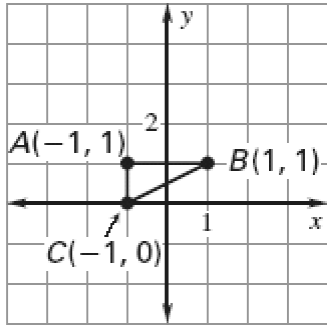
9. $A(2, 4), B(6, 2); k = \frac{1}{2}$

$$A'(\underline{\hspace{2cm}}, \underline{\hspace{2cm}}) \quad B'(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$$



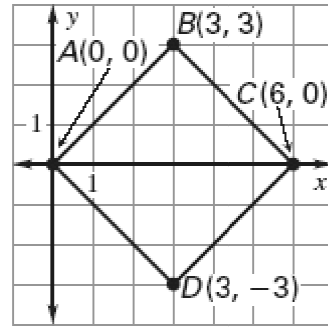
10. $A(-1, 1), B(1, 1), C(-1, 0); k = 3$

$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$



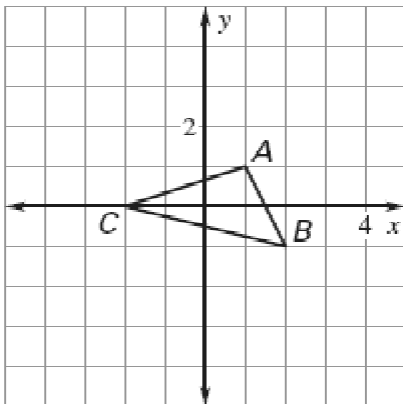
11. $A(0, 0), B(3, 3), C(6, 0), D(3, -3); k = \frac{1}{3}$

$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

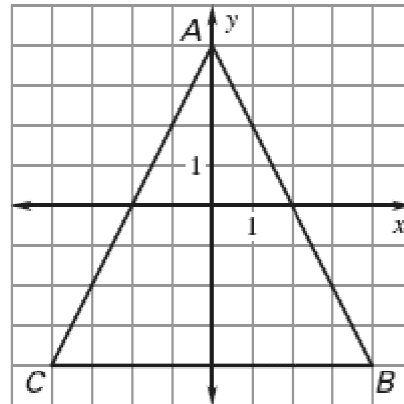


Draw a dilation of the figure using the given scale factor.

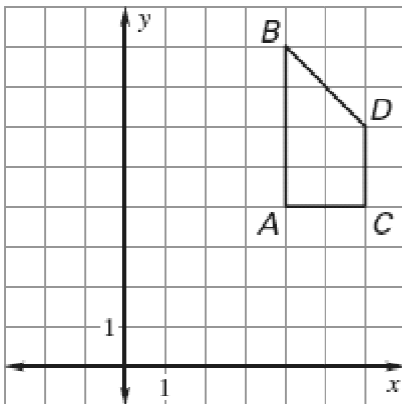
12. $k = 2$



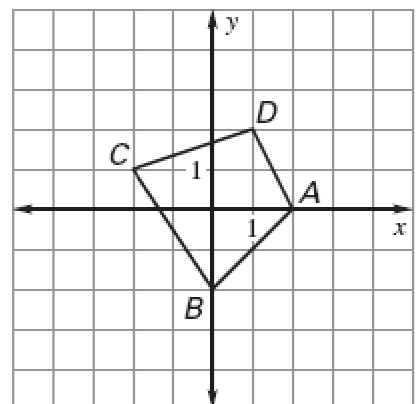
13. $k = \frac{1}{4}$



14. $k = \frac{1}{2}$

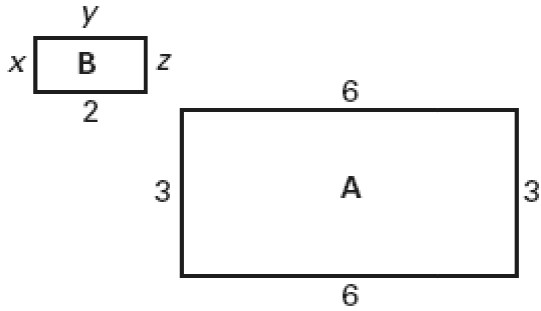


15. $k = 1\frac{1}{2}$

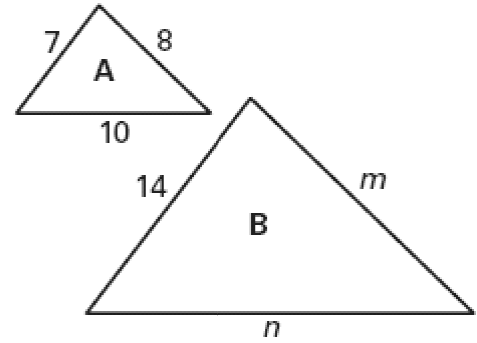


Determine whether the dilation from Figure A to Figure B is a *reduction* or an *enlargement*. Then, find the values of the variables.

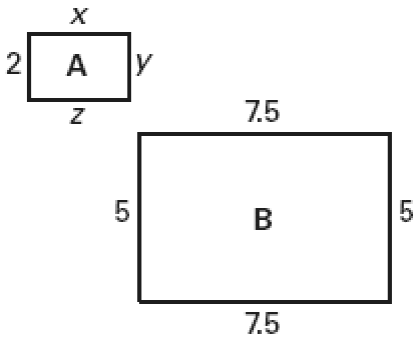
16.



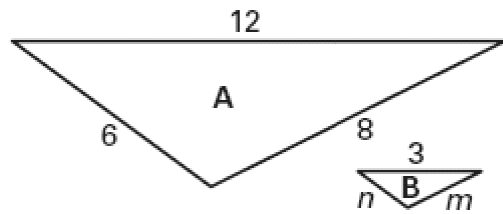
17.



18.



19.



Point A is a vertex of a polygon. Point R is the image of A after a dilation. Find the scale factor of the dilation.

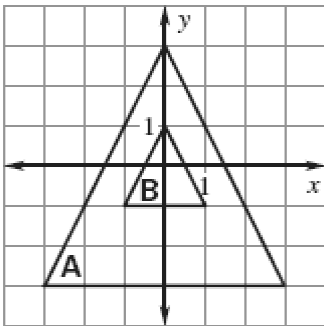
20. $A(3, 4), R(9, 12)$

21. $A(9, 12), R(6, 8)$

22. $A(-2, -3), R(-10, -15)$

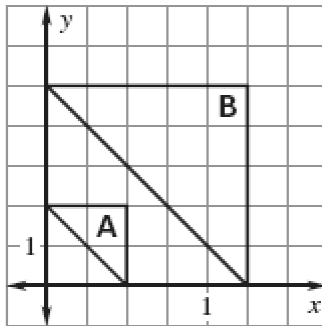
Determine whether the dilation from Figure A to Figure B is a *reduction* or an *enlargement*. Then find its scale factor.

23.



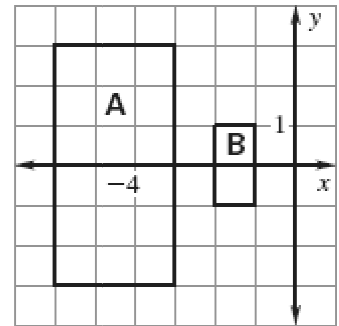
$k = \underline{\hspace{2cm}}$

24.



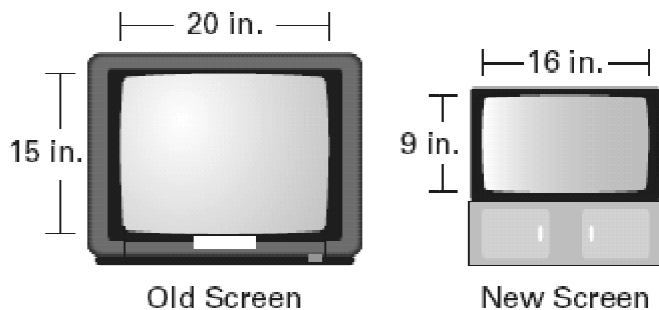
$k = \underline{\hspace{2cm}}$

25.



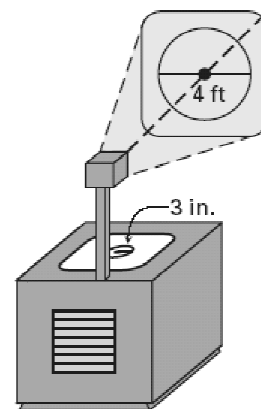
$k = \underline{\hspace{2cm}}$

26. Television Screens The screen on your old television is 20 inches wide and 15 inches high. The screen on your new widescreen television is 16 inches wide and 9 inches high. Is the screen on your new TV a dilation of the screen on your old TV? *Explain.*



27. Painting You are using a photograph that is 4 inches wide and 6 inches high to paint a portrait of a friend on a canvas that is 1 foot wide and 18 inches high. Are the dimensions of the portrait a dilation of the dimensions of the photograph? If so, state the scale factor. If not, *explain* why not.

28. Overhead Projectors Your teacher draws a circle on an overhead projector. The projector then displays an enlargement of the circle on the wall. The circle drawn has a radius of 3 inches. The circle on the wall has a diameter of 4 feet. What is the scale factor of the enlargement?



29. Posters A poster is enlarged and then the enlargement is reduced as shown in the figure.

- What is the scale factor of the enlargement? the reduction?
- A second poster is reduced directly from size A to size C. What is the scale factor of the reduction?
- How are the scale factors in part (a) related to the scale factor in part (b)?

