

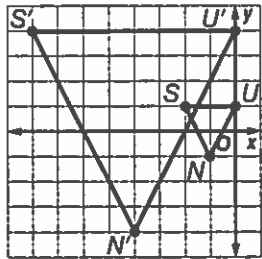
Key

Lesson 4 Homework Practice

Dilations

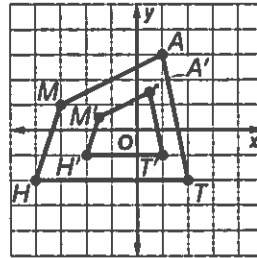
Find the coordinates of the vertices of each figure after a dilation with the given scale factor k . Then graph the original image and the dilation.

1. $S(-2, 1), U(0, 1), N(-1, -1); k = 4$



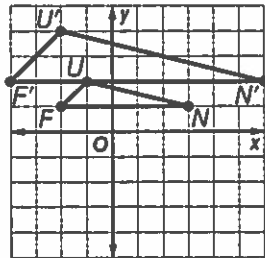
$S'(-8, 4), U'(0, 4),$
 $N'(-4, -4)$

2. $M(-3, 1), A(1, 3), T(2, -2), H(-4, -2);$
 $k = \frac{1}{2}$



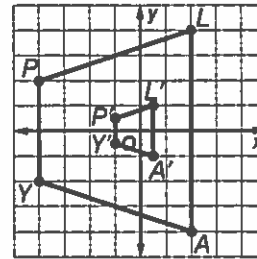
$M'(-1\frac{1}{2}, \frac{1}{2}),$
 $A'(\frac{1}{2}, 1\frac{1}{2}), T'(1, -1),$
 $H'(-2, -1)$

3. $F(-2, 1), U(-1, 2), N(3, 1); k = 2$



$F'(-4, 2),$
 $U'(-2, 4),$
 $N'(6, 2)$

4. $P(-4, 2), L(2, 4), A(2, -4), Y(-4, -2);$
 $k = \frac{1}{4}$



$P'(1-1, \frac{1}{2}), L'(\frac{1}{2}, 1),$
 $A'(\frac{1}{2}, -1),$
 $Y'(-1, -\frac{1}{2})$

5. **MAPS** Rachel and her cousin, Lena, live in different cities that are about 100 miles apart. On a map, the two cities measure 5 inches apart. What is the scale factor used for the map?

$\frac{1}{20}; 1 \text{ inch} = 20 \text{ miles}$

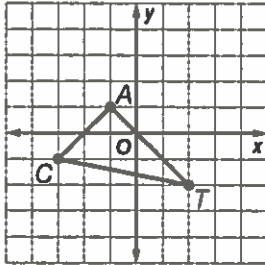
6. **GEOMETRY** A square has vertices $J(-1, 4), U(5, 4), M(5, -2), P(-1, -2)$. After a dilation, square $JUMP$ has vertices $J(-0.5, 2), U(2.5, 2), M(2.5, -1), P(-0.5, -1)$. What is the scale factor of the dilation? $\frac{1}{2}$

7. **LANDSCAPING** A landscape designer has a drawing of a flower bed that measures 6 inches by 9 inches. The owner wants the actual flower bed to be 5 feet by 7.5 feet. What is the scale factor the designer must use to install the new flower bed? **10**

Lesson 4 Problem-Solving Practice

Dilations

1. **GEOMETRY** Find the coordinates of the triangle shown below after a dilation with a scale factor of 4.



$C'(-12, -4)$, $A'(-4, 4)$, $T'(8, -8)$

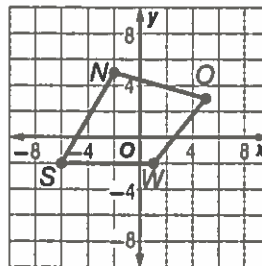
2. **PHOTOS** Daniel is using a scale factor of 10 to enlarge a class photo that measures 3.5 inches by 5 inches. What are the dimensions of the photo after the dilation?

35 inches by 50 inches or about 3 feet by 4 feet

3. **DOGS** Isabel has a mother dog and her puppy that look exactly alike. The puppy weighs 6 pounds, and the mother weighs 48 pounds. Assuming the two dogs are similar, what is the scale factor of the dilation?

8

4. **GEOMETRY** Find the coordinates of the quadrilateral shown below after a dilation with a scale factor of $\frac{1}{2}$.



$S'(-3, -1)$, $N'(-1, 2.5)$,
 $O'(2.5, 1.5)$, $W'(0.5, -1)$

5. **BLUEPRINTS** Abby's family is building a new house. On the blueprints of the house, Abby's bedroom measures 3 inches by 3.75 inches. Her actual bedroom will measure 8 feet by 10 feet. What is the scale factor for the dilation?

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6. **ART** William saw a painting in a museum, and later found a picture of that same painting in a book. The actual painting measured 36 inches by 54 inches. The picture of the painting measured 4 inches by 6 inches. What is the scale factor for the dilation?

$\frac{1}{9}$