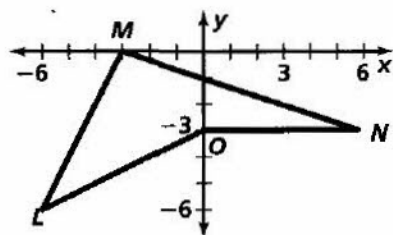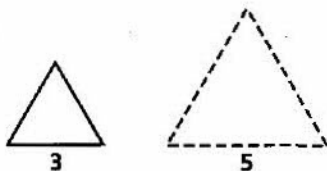# Practice 12-7

Dilations

Use matrices to find the image of figure *LMNO* under a dilation centered at the origin with the given scale factor.

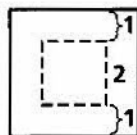1. $\frac{1}{3}$ 2. 5   3. 2

Find the scale factor for the dilation that maps the solid-line figure onto the dashed-line figure.
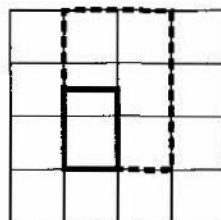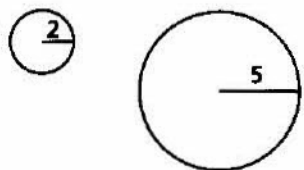
4.

5.

6.

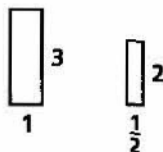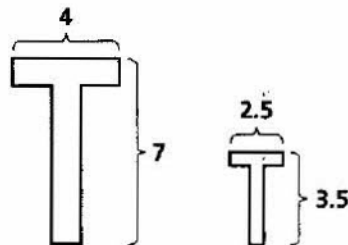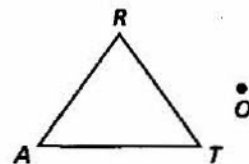For each pair of figures, determine whether one figure is a dilation of the other.

7.

8.

9.

Draw △*A'R'T'* under the dilation with the given center and scale factor.

10. center *O*, scale factor $\frac{1}{2}$

11. center *T*, scale factor $\frac{1}{2}$

12. center *O*, scale factor 2

Use scalar multiplication to find the image of △*PQR* for a dilation with center (0, 0) and the given scale factor.

13. *x*-coordinate $\begin{array}{ccc} P & Q & R \\ \end{array}$ $\begin{bmatrix} -6 & -3 & 0 \\ -6 & 0 & -3 \end{bmatrix}$
    y-coordinate
    scale factor 2

14. *x*-coordinate $\begin{array}{ccc} P & Q & R \\ \end{array}$ $\begin{bmatrix} -2 & 5 & 7 \\ 1 & -1 & 8 \end{bmatrix}$
    y-coordinate
    scale factor $\frac{1}{4}$

15. *x*-coordinate $\begin{array}{ccc} P & Q & R \\ \end{array}$ $\begin{bmatrix} -7 & 1 & -2 \\ 2 & 8 & 2 \end{bmatrix}$
    y-coordinate
    scale factor 3

16. *x*-coordinate $\begin{array}{ccc} P & Q & R \\ \end{array}$ $\begin{bmatrix} -10 & -5 & 0 \\ 5 & 0 & 5 \end{bmatrix}$
    y-coordinate
    scale factor $\frac{1}{5}$