9-3

Practice

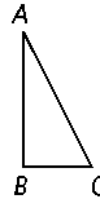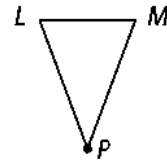*Form G*

Rotations

Copy each figure and point *P*. Draw the image of each figure for the given rotation about *P*. Use prime notation to label the vertices of the image.
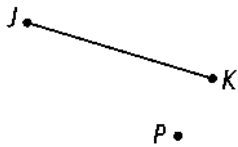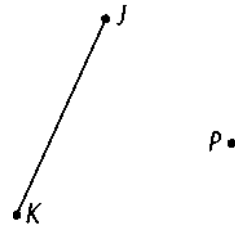
2. 90°

• *P*

4. 180°

Copy each figure and point *P*. Then draw the image of $\overline{JK}$ for a 180° rotation about *P*. Use prime notation to label the vertices of the image.
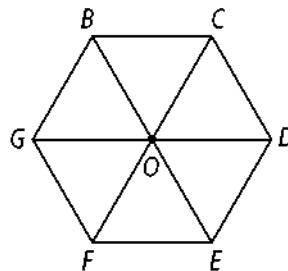
5.

6.

Point *O* is the center of regular hexagon *BCDEFG*. Find the image of the given point or segment for the given rotation.

8. 180° rotation of *B* about *O*.

10. 360° rotation of $\overline{CD}$ about *O*.

11. 60° rotation of *E* about *O*.
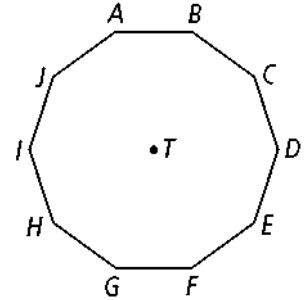
12. 240° rotation of $\overline{FE}$ about *O*.

Practice (continued)

9-3

Rotations

Form G

Use the figure at the right for Exercises 13–15. Point *T* is the center of the regular decagon.

13. What is the angle of rotation that maps *D* to *A?*

14. What is the angle of rotation that maps *B* to *H?*

15. What is the angle of rotation that maps $\overline{FG}$ to $\overline{DE}$?

16. Describe a composition of rotations that maps *A* to *E.*

For Exercises 17 and 18, copy Δ*NOP*. Draw the image of Δ*NOP* for the given composition of rotations about the given point.

18. 45°, then 90°; *N*

21. A pie is cut into 12 equal slices. What is the angle of rotation about the center that will map a piece of pie to a piece that is two slices away from it?

22. Δ*RST* has vertices at *R*(0, 3), *S*(4, 0), and *T*(0, 0). Find the coordinates of the vertices after a 90º clockwise rotation about *T.*

23. Δ*FGH* has vertices *F*(−1, 2), *G*(0, 0), and *H*(3, −1). Find the coordinates of the vertices after a 90° rotation about *G.*