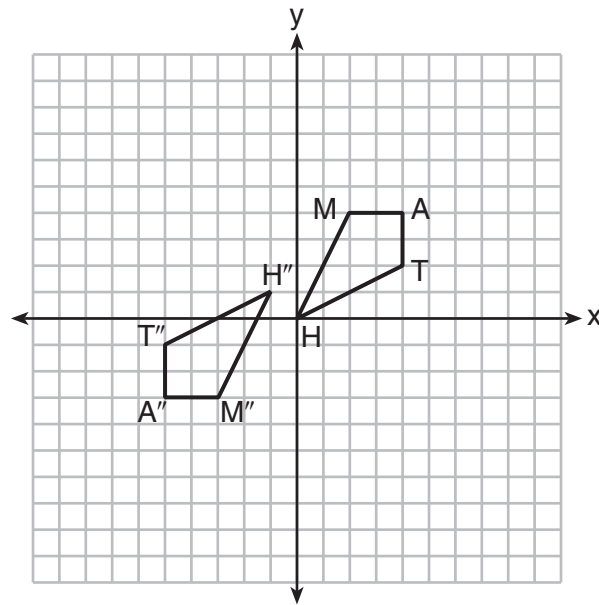
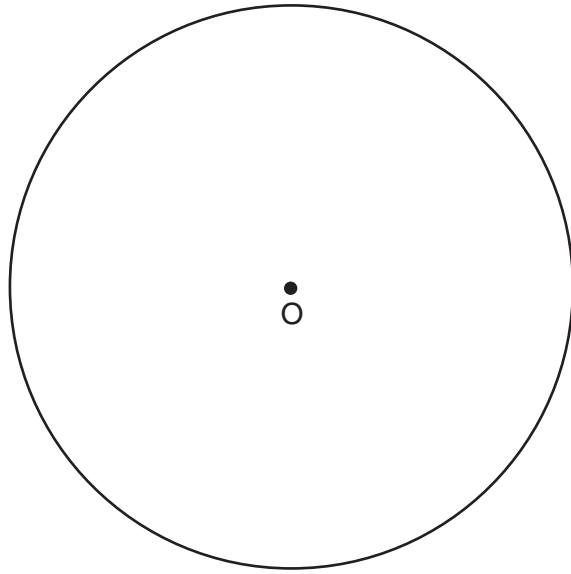


27 Quadrilateral  $MATH$  and its image  $M''A''T''H''$  are graphed on the set of axes below.



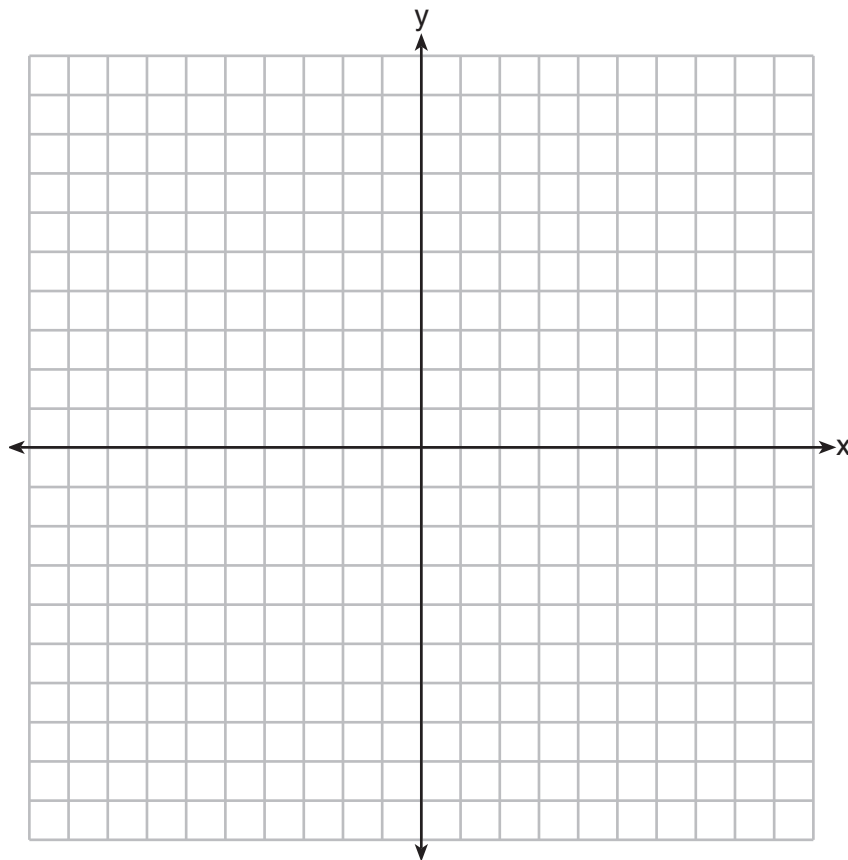
Describe a sequence of transformations that maps quadrilateral  $MATH$  onto quadrilateral  $M''A''T''H''$ .

**28** Using a compass and straightedge, construct a regular hexagon inscribed in circle  $O$ .  
[Leave all construction marks.]

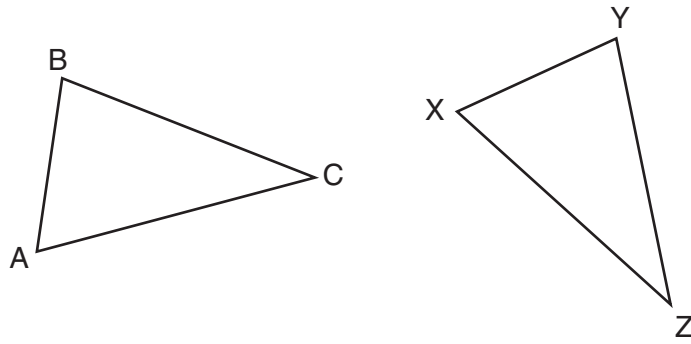


**29** The coordinates of the endpoints of  $\overline{AB}$  are  $A(2,3)$  and  $B(5,-1)$ . Determine the length of  $\overline{A'B'}$ , the image of  $\overline{AB}$ , after a dilation of  $\frac{1}{2}$  centered at the origin.

[The use of the set of axes below is optional.]



30 In the diagram below of  $\triangle ABC$  and  $\triangle XYZ$ , a sequence of rigid motions maps  $\angle A$  onto  $\angle X$ ,  $\angle C$  onto  $\angle Z$ , and  $\overline{AC}$  onto  $\overline{XZ}$ .



Determine and state whether  $\overline{BC} \cong \overline{YZ}$ . Explain why.

**31** Determine and state the coordinates of the center and the length of the radius of a circle whose equation is  $x^2 + y^2 - 6x = 56 - 8y$ .