

# Assignment

## Write

Complete each definition.

1. A function that rotates points around a center point through an angle is called a \_\_\_\_\_.
2. Concentric circles are circles with a common \_\_\_\_\_.

## Remember

A rotation is a function that maps its input, a point  $P$ , to another location,  $f(P)$ . This movement to a new location is defined by a center of rotation,  $E$ , and a rotation angle,  $t$ . A rotation function is written as  $R_{E,t}(P)$ .

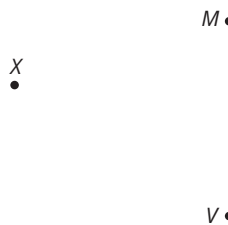
## Practice

1. Complete each rotation given the function.

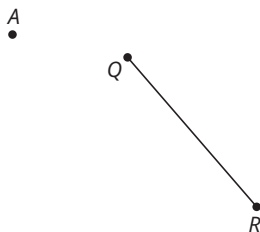
a.  $R_{D,45}(\overline{AB})$



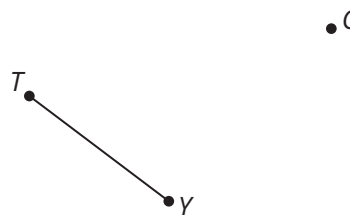
b.  $R_{X,-25}(\overline{MV})$



c.  $R_{A,125}(\overline{QR})$

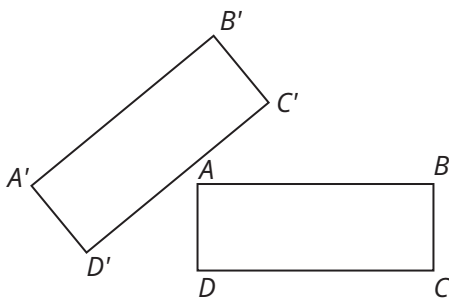


d.  $R_{C,80}(\overline{TY})$

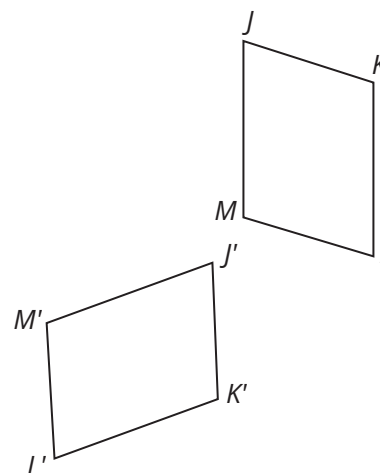


2. Use what you know to determine the center of rotation and rotation angle for the transformation of each figure. Write each rotation as a function.

a.

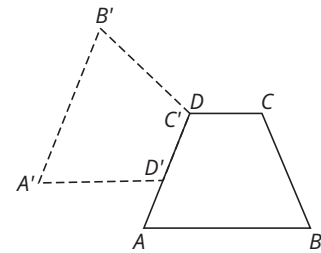


b.



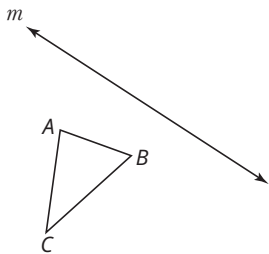
## Stretch

Determine and draw the sequence of transformations that could be used to transform Trapezoid  $ABCD$  into Trapezoid  $A'B'C'D'$ . Include the locations of lines and points that the figure is reflected around, translated on, or rotated about. Also include the rotation angle.

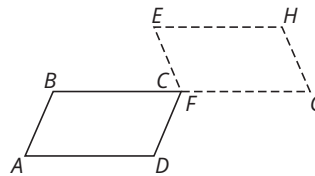


## Review

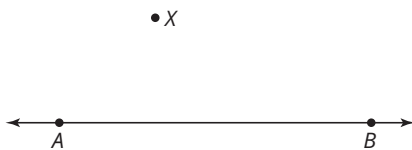
1. Complete the reflection given the function  $R_m(ABC)$ .



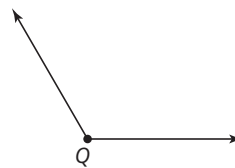
2. Describe the sequence of transformations that will map parallelogram  $ABCD$  onto parallelogram  $GHEF$ .



3. Construct a line perpendicular to line  $AB$  that passes through point  $X$ .



4. Duplicate  $\angle Q$ .



5. Calculate the average rate of change of the functions over the given interval.

- a.  $f(x) = -\frac{1}{2}x - 4$  for the interval  $x = -3$  to  $x = 4$ .  
 b.  $f(x) = 2 \cdot (3)^{x-1}$  for the interval  $x = 0$  to  $x = 3$ .