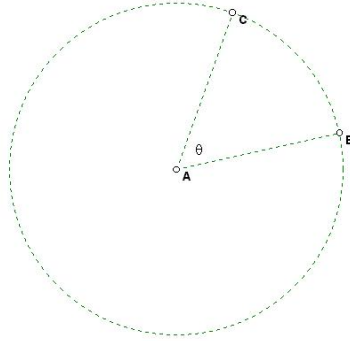


# Other Types of Symmetries

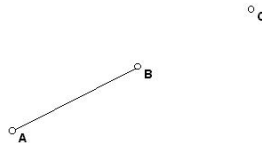
## Rotation Symmetry

An object has rotation symmetry around a point  $A$  if for any point  $B$  on the object the point  $C$  which is the rotation of  $B$  about  $A$  by some fixed angle  $\theta$  is also on the object.



## Dilation Symmetry

An object has dilation symmetry centered at a point  $A$  with factor  $t$  if for any point  $B$  on the object the point  $C$  which is the dilation of  $B$  from  $A$  by  $t$  is also on the object. This means that we take the line segment from  $A$  to  $B$  multiply its length by  $t$  and then  $C$  is the point in the same direction as  $B$  and  $t$  times the length away from  $A$ .



## Rotation & Dilation Symmetry

An object has rotation and dilation symmetry centered at a point  $A$  with factor  $t$  and angle  $\theta$  if for any point  $B$  on the object the point  $C$  which is the dilation and rotation of  $B$  from  $A$  by  $t$  and  $\theta$  is also on the object.

