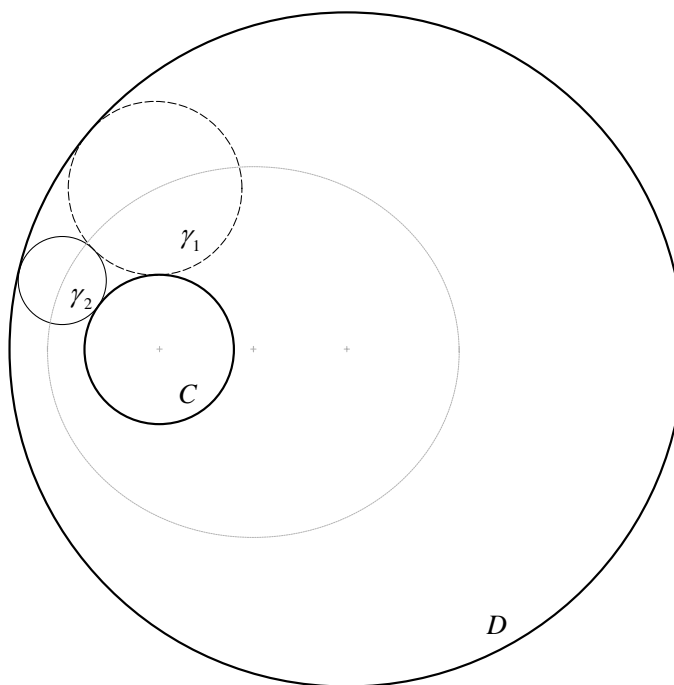
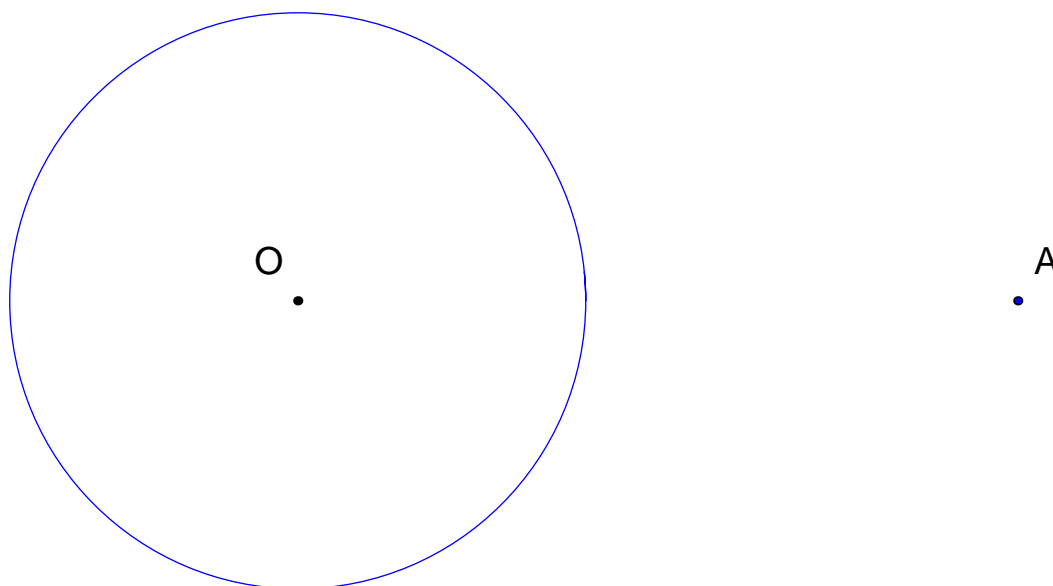


**Warm Ups**

1. Below you'll find two dark non-intersecting circles,  $C$  and  $D$ , with  $C$  inside  $D$ . Circle  $\gamma_1$  is constructed internally tangent to  $D$  and externally tangent to  $C$ . We can use this to start a counter-clockwise chain by constructing circle  $\gamma_2$  internally tangent to  $D$  externally tangent to  $C$  and tangent to  $\gamma_1$ .
  - (a) Continue to place (eye balling this is fine) more circles  $\gamma_k$  in a counter-clockwise direction. The dotted path is the locus of the centers of all circles internally tangent to  $D$  and externally tangent to  $C$ .
  - (b) Show that the path is an ellipse. [Hint: Consider whether the centers of  $C$  and  $D$  might work as foci.]



2. Given point  $A$  and a circle, construct a line tangent to the circle going through  $A$ .



See <http://www.cgl.ucsf.edu/home/bic> for a pdf of this and other files from the talk.