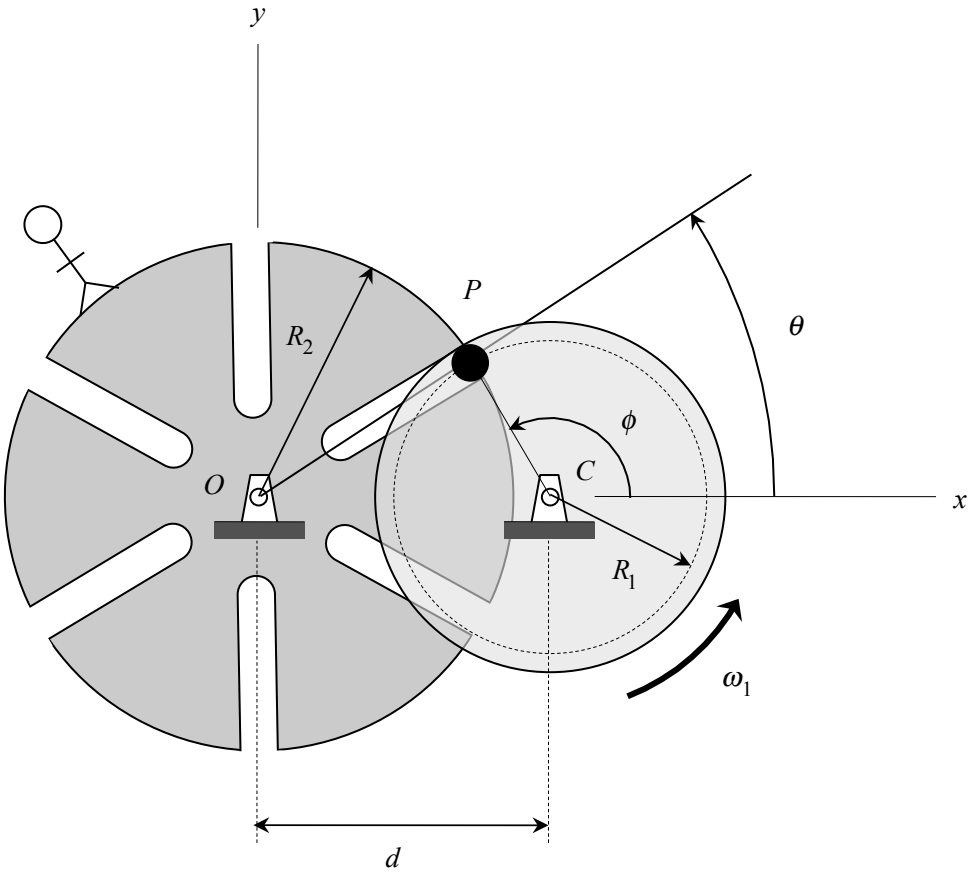
Homework H.3.D

Given: A "Geneva mechanism" is made up of a slotted wheel (on the left) and a disk (on the right), with the wheel and disk having parallel axes. Pin P on the disk is able to slide in a slot in the slotted wheel as the disk turns. The disk is given a constant counter-clockwise rotation rate of ω_1. For the position shown, it is known that $\theta = 30°$ and $\phi = 120°$. An observer also attached to the slotted wheel.

Find: For this problem:

(a) Determine the angular velocity and angular acceleration of the slotted disk for the position shown. Write your answers as vectors.

(b) Determine the angular velocity and angular acceleration of the slotted disk for the position corresponding to $\phi = 150°$. Write your answers as vectors.



Use the following parameters in your analysis: $R_1 = 2$ in, $d = 4$ in and $\omega_1 = 6$ rad/s.