EasyDyn problem: Wheel on a circular path

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1 Description of the system

The considered system is represented in figure 1 and consists of a wheel rolling without sliding on a circular path. The system owns only one degree of freedom corresponding to the angle of segment OC with respect to the vertical. The dimensional and inertial parameters are given on the figure.

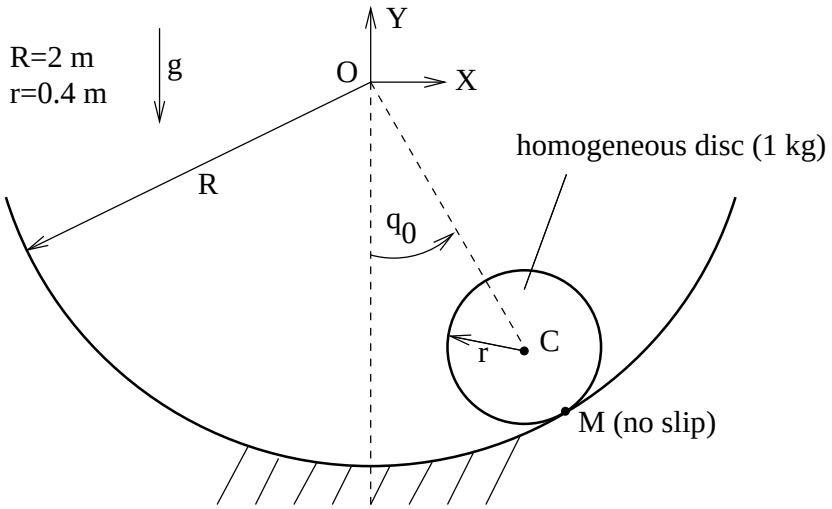

Figure 1: Wheel on a circular pah

2 Requested results

It is asked to determine the time needed for the wheel to reach the position $q_0 = 0$, from initial conditions q_0=1 rad and $\dot{q}_0$=0 rad/s.

3 Typical results

Figures 2 and 3 show the expected behaviour.

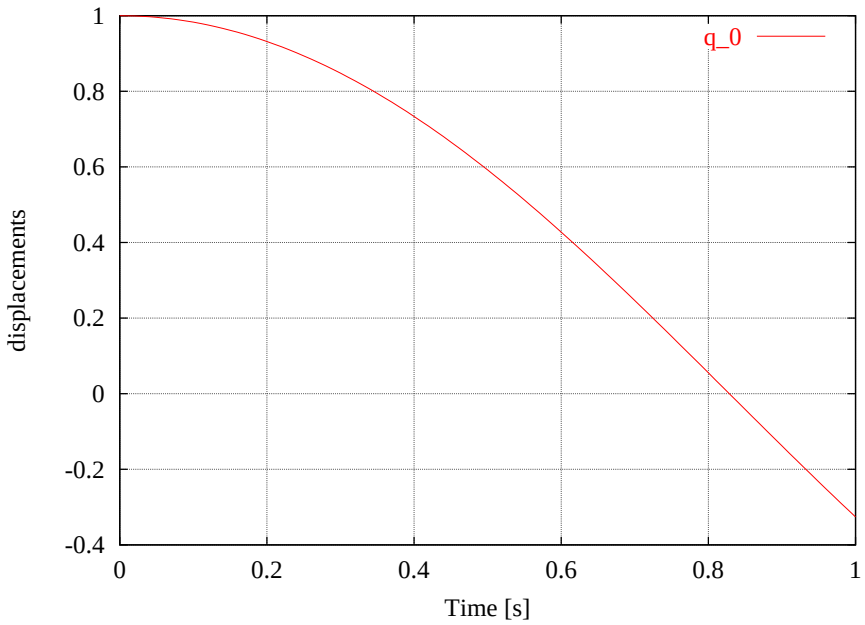

Figure 2: Evolution of the wheel position

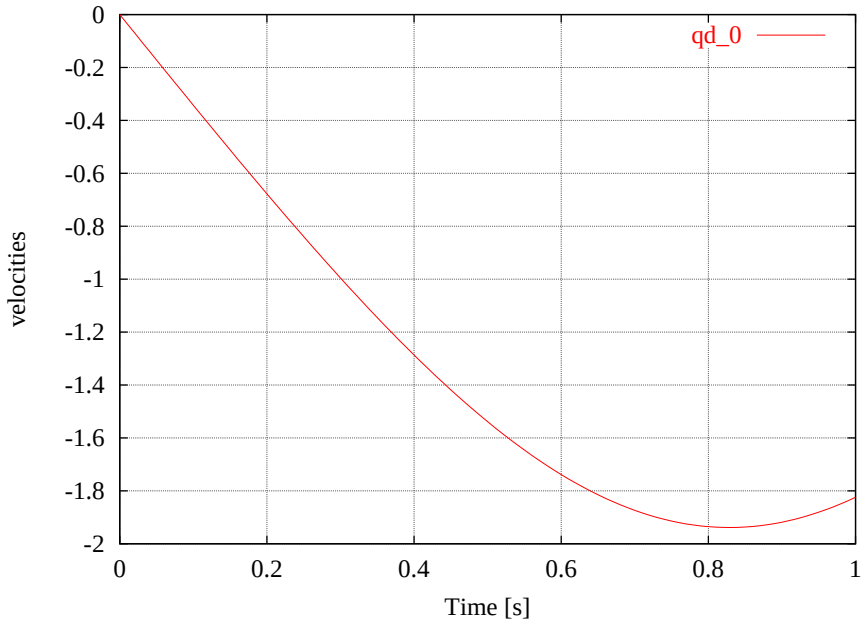

Figure 3: Evolution of the wheel velocity