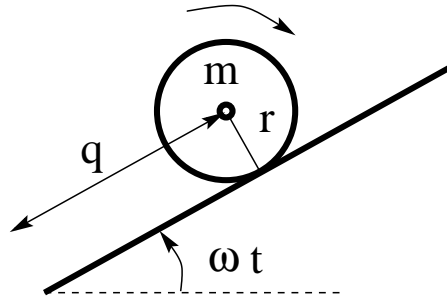## [mex116] Disk rolling on rotating track

A disk of radius r and mass m rolls without slipping on a track of negligible mass which rotates with constant angular velocity ω.

(a) Find the kinetic energy $T(q, \dot{q})$.

(b) Find the solution $q(t)$ for initial conditions $q(0) = q_0$, $\dot{q}(0) = 0$.

Solution: