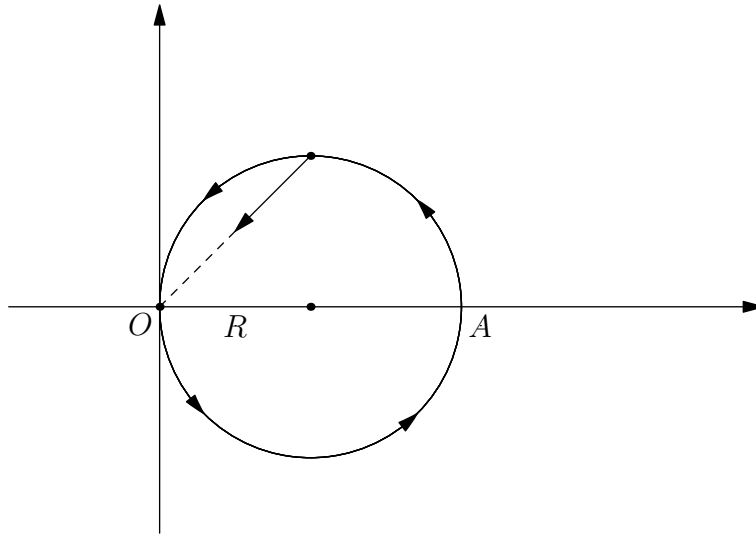


J06M.2 - Displaced Circular Orbit

Problem

A point mass m is moving on a circular orbit of radius R under the effect of a central force directed toward the point O on the orbit (see figure below). Its speed at point A (A is diametrically opposite to O) is equal to v_A .



- Find the expression for the force generating this motion.
- Using the convention that the potential energy vanishes infinitely far from the center of attraction, compute the values of the energy and of the angular momentum for the circular orbit.
- Find the time needed for the point mass to complete the orbit.