

Unit Objectives

Circular Motion

You should be able to:

1. relate the radius of a circle and the speed tangential or angular speed of an object to the centripetal acceleration.
2. describe an object's circular motion in terms of velocity and acceleration (magnitude and direction).
3. analyze a satellite's orbit to determine relative velocities by using conservation of angular momentum and energy.
4. calculate the torque associated with a force and a distance.
5. calculate the torque on a rigid body due to gravity.
6. state the conditions for rotational equilibrium.
7. apply these conditions to calculate force, distance or the angle of the applied force.
8. calculate gravitational force.
9. for circular orbit recognize that the mass of the object does not affect the orbital velocity, period of revolution or centripetal acceleration