

Swihart Ch. 2 Main Concepts

Total energy (E), kinetic energy (KE), and gravitational potential energy (PE)

Conservation of energy ($E = KE + PE$)

Two-body reduced mass

Newton's law of gravitation (vector form)

Positive, negative, and zero total energy in orbits

Escape velocity

Circular motion

- centripetal acceleration and force

- circular speed

- KE, PE, and total E in circular orbit

Kepler's third law (KIII), both full form and planetary form

Angular momentum

Orbital trajectories: ellipse, parabola, hyperbola

Apehelion, perihelion, semi-major axis, and eccentricity

angle of inclination (for orbit)

Vectors

- dot and cross product

- unit vectors

- relation of gravitational PE to force