Kinematics

$$X = X_i + \frac{(V_i + V_f)}{2} t$$

$F\Delta t = m\Delta v$

$W = \Delta KE$

Projectile

$X = V\cos\theta\, t$

$t = \frac{2V_i \sin\theta}{g}$

off diff

$t = \sqrt{\frac{2h}{g}}$

$x = vt$

Forces

$F_{\parallel} = F_g \sin\theta$

$F_{\perp} = F_g \cos\theta$

$a = \frac{F_{net} - F_{ind}}{(m_1 + m_2)}$

$F_c = \frac{mv^2}{r}$

$ME_i = ME_f$

$U_{g_i} + K_i = U_{2f} + K_f$

Pendulum $h = L - L\cos\theta$

Mech Power $P = \frac{Fd}{t}$ $P = Fv$

momentum $m_1 v_{1_i} + m_2 v_{2_i} = m_1 v_{1_i} + m_2 v_{2_i}$

$m_1 v_{1_i} + m_2 v_{2_i} = (m_1 + m_2) v_f$

rotation $\omega_f^2 = \omega_i^2 + 2\alpha\theta$

$v_t = r\omega$

$a_t = r\alpha$

$I = \sum_n^i mr^2$

mass on spring

$\frac{1}{2} m v_i^2 + \frac{1}{2} k x_i^2 = \frac{1}{2} m v_f^2 + \frac{1}{2} k x_f^2$

Standing waves and open pipe $f_n = n\frac{v}{2L}$ 1,2>

closed $f_n = n\frac{nv}{4L}$ 1,3,5

$f_{beat} = |f_1 - f_2|$

Elect. Power $P = I^2 R$

$P = \frac{V^2}{R}$