Linear:

$v = \frac{\Delta x}{\Delta t}$
$a = \frac{\Delta v}{\Delta t}$

$v_f = v_i + at$
$x_f = x_i + v_i t + \frac{1}{2}at^2$
$v^2 = v_i^2 + 2a(x - x_i)$
$v = \frac{1}{2}(v + v_i)$

$\Sigma F_{net} = ma$

$F_F = \mu F_N$
$F_N = mg\cos\theta$

$W = F_{net}\Delta x\cos\theta$
$F_{net}\Delta x\cos\theta = \Delta E$
$W = \frac{1}{2}m{v_f}^2 - \frac{1}{2}m{v_i}^2$
$F = -k\Delta x$

$P = \frac{\Delta W}{\Delta t}$
$P = Fv\cos\theta$

$P = Fv$

$KE = \frac{1}{2}mv^2$
$PE_{grav} = mgh$
$PE_{spring} = \frac{1}{2}kx^2$

$p = m\Delta v$

$J = F_{net}\Delta t$
$J = F_{net}\Delta t = \Delta p = mv_f - mv_i$

Rotational:

$T = \frac{1}{f}$
$T = \frac{2\pi}{\omega}$
$f = \frac{1}{T}$

$v_c = \frac{2\pi r}{T}$
$a_c = \frac{\Delta v}{t}$
$F_c = m\frac{{v_c}^2}{r}$

$F_c = ma$
$F_c = m\frac{4\pi^2 r}{T^2}$

Orbital:

$G = 6.673 \times 10^{-11}$
$F_{grav} = -\frac{Gm_1m_2}{r}$

$U_g = -\frac{Gm_1m_2}{r^2}$

$F_{grav} = \frac{GMm}{r}$

Angular:

$\alpha = \frac{\Delta\omega}{t}$
$a = \alpha r - \omega^2 r$
$\omega = \frac{\Delta\theta}{t}$
$\omega = 2\pi f$
$v = \omega * r$

$\omega_f = \omega_i + at$
$\theta_f = \theta_i + \omega_i t + \frac{1}{2}\alpha t^2$
${\omega_f}^2 = {\omega_i}^2 + 2\alpha(\theta_f - \theta_i)$
$\omega = \frac{1}{2}(\omega_f - \omega_i)$

$\theta = \frac{1}{2}(\omega_f - \omega_i)t$

$\tau = F_{net}r\sin\theta$
$\tau = I\alpha$
$\tau = \frac{L}{t}$

$I = \Sigma mr^2$

$L = mrv\sin\theta$
$L = rp$

$L = I\omega$

$K = \frac{1}{2}I\omega^2$

$P = \tau\omega\cos\theta$
$P = \tau\omega$

$W = \tau\Delta\theta$

SHM:

$T_{pend} = 2\pi\sqrt{\frac{\ell}{g}}$
$T_{spring} = 2\pi\sqrt{\frac{m}{k}}$

$x(t) = A\cos(wt)$
$x(t) = A\cos(2\pi ft)$
$\omega = 2\pi f$

$v_{max} = 2\pi fA$
$a_{max} = (2\pi f)^2 A$

Waves:

$v = f\lambda$
$v_{light} = 3 \times 10^8$ m/s
$v_{sound(air0^\circ)} = 331$ m/s
$v_{sound(air20^\circ)} = 343$ m/s

$v_{water} = 1480$ m/s
$v_{ultrasound(med)} = 1540$ m/s
$\lambda_{n(string)} = \frac{2\ell}{n}$

$f_{n(string)} = n\frac{v}{2\ell}$
$\lambda_{n(wind)} = \frac{4\ell}{n}$
$f_{n(wind)} = n\frac{v}{4\ell}$