$\bar{v} = \frac{\Delta x}{\Delta t}$ $v = \frac{dx}{dt}$ $\bar{a} = \frac{\Delta v}{\Delta t}$ $a = \frac{dv}{dt}$ $\bar{v} = \frac{1}{2}\left(v_i + v_f\right)$

$x = \frac{1}{2}at^2 + v_i t + x_i$ $v = at + v_i$ $v_f^2 = v_i^2 + 2a\Delta x$ $R = \frac{v^2 \sin 2\theta}{g}$

$a_c = \frac{v^2}{r}$ $F = -kx$

$\sum \vec{F} = m\vec{a}$ $f = \mu N$ $w = mg$ $w_\perp = mg\cos\theta$ $w_\parallel = mg\sin\theta$

$W = Fd\cos\theta$ $W = \int F \bullet dx$ $K = \frac{1}{2}mv^2$ $P = \frac{dW}{dt}$ $P = Fv$

$U_{gravity} = mgh$ $U_{spring} = \frac{1}{2}kx^2$

$\vec{p} = m\vec{v}$ $\int \vec{F}\,dt = (\vec{F}_{ave}t)$

$v_{1f} = \frac{m_1 - m_2}{(m_2 + m_1)} v_{1i} + \frac{2m_2}{(m_2 + m_1)} v_{2i}$ $v_{2f} = \frac{2m_1}{(m_2 + m_1)} v_{1i} + \frac{(m_2 - m_1)}{(m_2 + m_1)} v_{2i}$

$|g| = 10\ \text{m/s}^2$