Mechanics Equations

$$\sum f = 0$$

$$speed = \frac{distance}{time}$$

$$average\ speed = \frac{total\ distance\ \text{covered}}{time\ interval}$$

$$acceleration = \frac{change\ of\ velocity}{time\ interval}$$

$$g = 10.0\ m/s^2$$

$$free\ fall: v = gt$$

$$free\ fall\ distance: d = \frac{1}{2}gt^2$$

$$momentum = mv$$

$$impulse = Ft$$

$$F = ma$$

$$weight = mg$$

$$momentum\ before = momentum\ after$$

$$Work = Fd = \Delta KE$$

$$power = \frac{work}{time}$$

$$PE = mgh$$

$$KE = \frac{1}{2}mv^2$$

$$\text{work}_{\text{input}} = work_{output}$$

$$Fd_{input} = Fd_{output}$$

$$torque = lever\ arm \times force$$

$$F = G\frac{m_1 m_2}{d^2}$$

$$G = 6.67 \times 10^{-11}\ N \cdot m^2/kg^2$$

$$angular\ momentum = mvr$$

$$centripetal\ force = \frac{mv^2}{r}$$