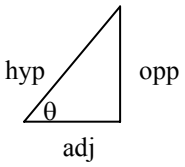
$$\sin\theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos\theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan\theta = \frac{\text{opp}}{\text{adj}}$$



$$\frac{d(x^n)}{dx} = nx^{n-1}$$

$$\int x^n dx = \frac{x^{n+1}}{n+1}$$

$$v = v_o + at$$

$$x = x_o + v_o t + \frac{1}{2}at^2$$

$$x = x_o + \left(\frac{v_o + v}{2}\right)t$$

$$v^2 = v_o^2 + 2a(x - x_o)$$

$$x - x_o = \int_{t_o}^{t} v\,dt$$

$$v - v_o = \int_{t_o}^{t} a\,dt$$

$$\sum \vec{F} = m\vec{a}$$

$$F_{\text{friction}} = \mu_k N$$

$$F_{\text{friction}} = \mu_s N$$

$$F_{\text{centripetal}} = \frac{mv^2}{r}$$

$$\text{circumference of circle} = 2\pi r$$

$$\text{area of circle} = \pi r^2$$

$$\text{quadratic equation} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$v = \lambda\nu$$

$$T = \frac{1}{f}$$

$$\omega^2 = \frac{k}{m}$$

$$\frac{d^2x}{dt^2} + \frac{k}{m}x = 0$$

$$T = 2\pi\sqrt{\frac{L}{g}}$$

$$\vec{F}_{spring} = -k(\vec{x} - \vec{x}_o)$$

$$work = \int F \cdot ds$$

$$power = \frac{dw}{dt}$$

$$\vec{A}\cdot\vec{B} = \left|\vec{A}\right|\left|\vec{B}\right|\cos\theta = A_xB_x + A_yB_y + A_zB_z$$

$$s = r\theta$$

$$v = r\omega$$

$$a = r\alpha$$

$$\omega = \omega_o + \alpha t$$

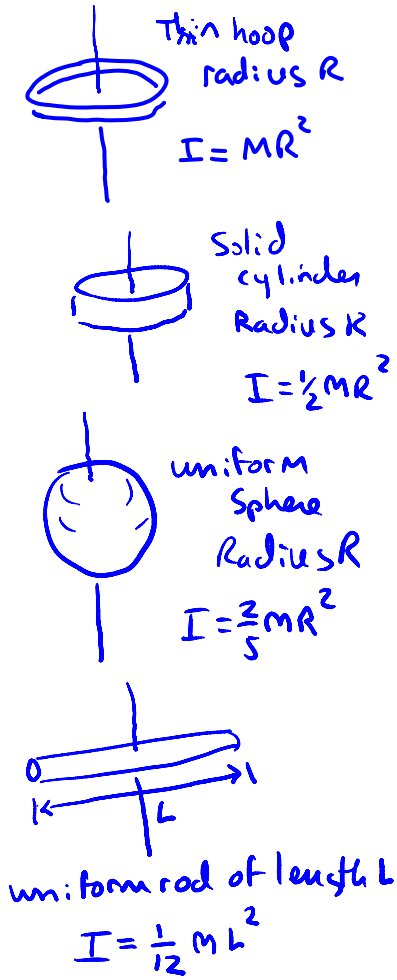
$$\theta = \theta_o + \omega_o t + \frac{1}{2}\alpha t^2$$

$$KE_{translation} = \frac{1}{2}MV^2$$

$$KE_{rotation} = \frac{1}{2}I\omega^2$$

$$I = \sum m_i r_i^2 = \int r^2 dm$$

$$X_{cm} = \frac{\sum x_i m_i}{M} = \frac{\int x dm}{M}$$



$$I = I_{cm} + mh^2$$

$$\vec{\tau} = \vec{r}\times\vec{F} = I\vec{\alpha} = \frac{d\vec{L}}{dt}$$

$$\vec{L} = \vec{r}\times\vec{p} = I\vec{\omega}$$

$$P = P_o + \rho gh$$

$$AV = \text{constant}$$

$$P + \frac{1}{2}\rho v^2 + \rho gy = \text{constant}$$