

$$\sum \vec{F} = m\vec{a} \quad (W = mg)$$

$a = \text{constant}$

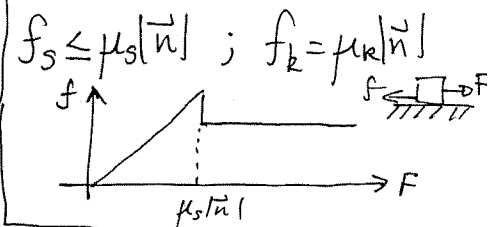
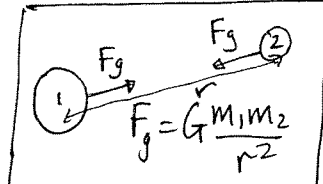
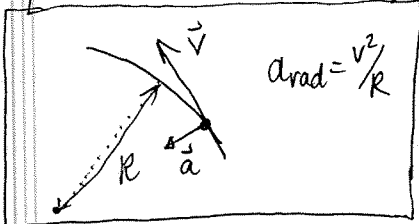
$X = X_0 + v_0 t + \frac{1}{2} a t^2$

$V = v_0 + a t$

$X = X_0 + \frac{1}{2} (v + v_0) t$

$v^2 = v_0^2 + 2a(x - x_0)$

rot
$a \rightarrow \alpha$
$x \rightarrow \theta$
$v \rightarrow \omega$
$t \rightarrow t$



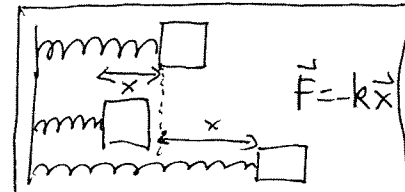
$K = \frac{1}{2} m v^2$

$U = mgh$

$U = \frac{1}{2} k x^2$

$K_i + U_i + W = K_f + U_f$

$W = F \Delta s \cos \theta$ ($F = \text{constant}$)



$\vec{p} = m\vec{v}$

$\vec{p}_{tot} = \vec{p}_1 + \vec{p}_2 + \vec{p}_3 + \dots$

$\vec{p}_{tot, i} = \vec{p}_{tot, f}$

$\vec{R}_{cm} = \frac{m_1 \vec{r}_1 + m_2 \vec{r}_2 + m_3 \vec{r}_3 + \dots}{m_1 + m_2 + m_3 + \dots}$

$\omega = \frac{\Delta \theta}{\Delta t}$

$\alpha = \frac{\Delta \omega}{\Delta t}$

$s = R\theta$

$v = R\omega$

$a_t = R\alpha$

$\omega = 2\pi \cdot f = 2\pi / T$

$\omega = \sqrt{\frac{k}{m}}$ "SHM"

$v = f\lambda$

$\mu = \frac{m}{L}$

$u = \sqrt{\frac{F_T}{\mu}}$

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

$\tau = F_{\perp} \cdot R$

$\sum \tau = I\alpha$ (c.f. $\sum F = m\vec{a}$)

$\rho = \frac{m}{V}$

$p = \frac{F_{\perp}}{A}$

$p = p_0 - \rho gh$

$W_{water} = \rho_{water} g V$

$I = \sum m_i r_i^2$