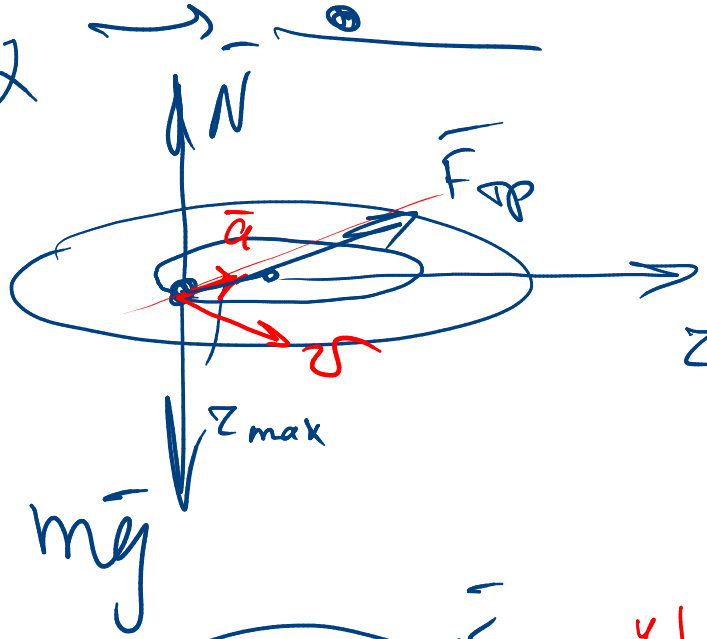
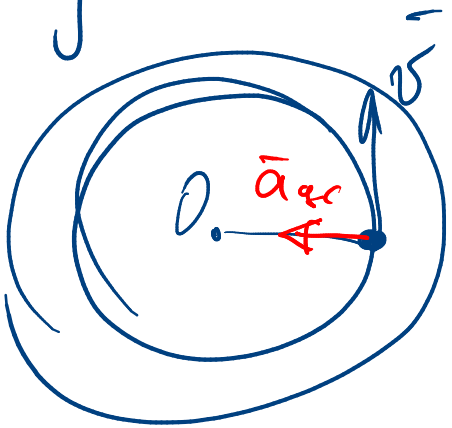
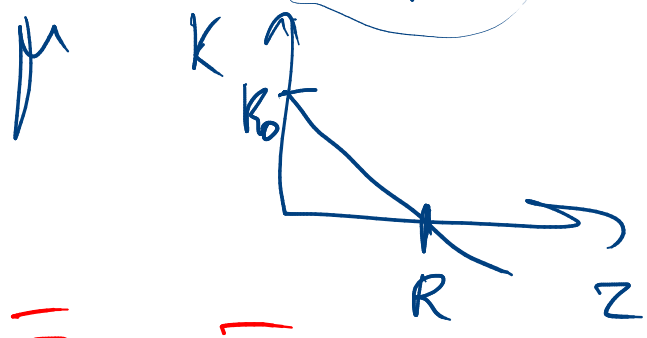




$$k = k_0\left(1 - \frac{z}{R}\right)$$



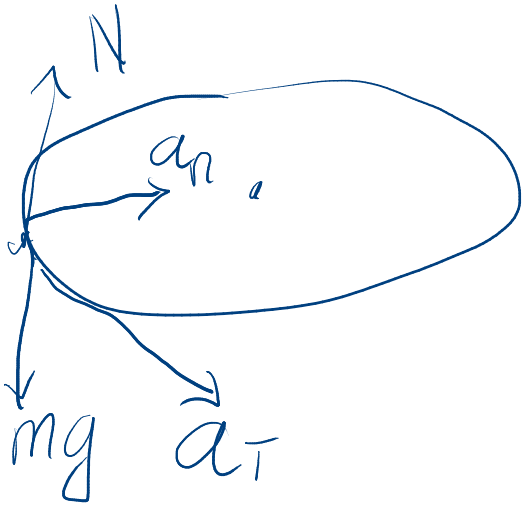
$$\bar{F} = m\bar{a}$$

$$\bar{N} + m\bar{g} + \bar{F}_{тр} = m\bar{a}, \quad a = \frac{v^2}{R}$$

$$y \mid N = mg$$

$$x \mid F_{тр} = ma = m\frac{v_{max}^2}{R}$$

$$F_{тр} = kN = kmg$$



$$m\bar{a} = \bar{F}_{mp} + m\bar{g} + \bar{N}$$

$$\Rightarrow \quad N = mg$$

$$ma_n = F_{mp} = k\,mg = m\frac{v_{max}^2}{R}$$

$$v_{max}^2 = kRg$$

$$v_{max}^2 - v_0^2 = 2a_\tau s \quad \Rightarrow \quad 2as = kRg \quad \Rightarrow \quad S = \frac{kRg}{2a_\tau}$$

$$\bar{F} = m\bar{a} = m\frac{d\bar{v}}{dt} = \frac{d\,m\bar{v}}{dt} = \frac{d\bar{p}}{dt}$$

$$\bar{F} = \frac{d\bar{p}}{dt} = \bar{\lambda} t (\tau - t)$$

$$d\bar{p} = \left(\bar{\lambda} t \tau - \bar{\lambda} t^2\right) dt$$

$$\Delta\bar{p} = \bar{\lambda}\tau\frac{t^2}{2} - \bar{\lambda}\frac{t^3}{3}$$

$$\bar{p} = p_0 + \bar{\lambda}\tau\frac{\tau^2}{2} - \bar{\lambda}\frac{\tau^3}{3} = \bar{\lambda}\tau^3\frac{1}{6}$$

$$\bar{p}(\tau) = 0 + \bar{\lambda}\tau\frac{\tau^2}{2} - \bar{\lambda}\frac{\tau^3}{3} = \bar{\lambda}\tau^3\frac{1}{6}$$

$$\bar{p}(\tau) = \bar{\lambda}\tau^3/6$$

2) S - ?

$$v = \frac{dS}{dt}$$

$$S = \int_0^{\tau} v\,dt$$

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

$$S =$$

$K mg = m\frac{v^2}{r}$ → $v^2 = k_0\left(r - \frac{r^2}{R}\right)g$

$v = v(r)$ $\quad v_{max} - ?$

$K = k_0\left(1 - \frac{r}{R}\right)$

$gK = \frac{v^2}{r}$

$gr K = v^2$

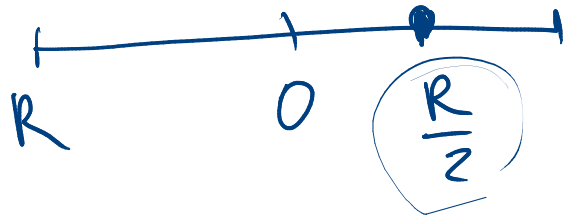
$gk_0\left(r - \frac{r^2}{R}\right) = v^2$

$v' = 0$

$r_{max} - ? = \frac{R}{2}$

$v\left(\frac{R}{2}\right) = \sqrt{k_0 g\left(\frac{R}{2} - \frac{R}{4}\right)} = v_{max}$

$= \sqrt{k_0 g \frac{R}{4}} = \sqrt{k_0 g R}/2$



$r_{max} = \frac{R}{2}$