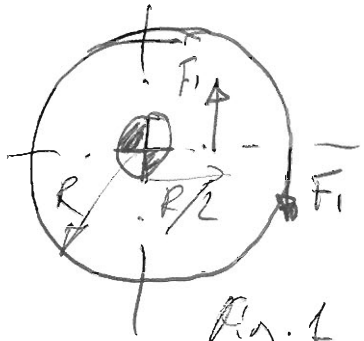


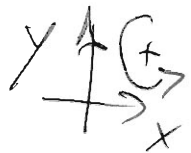
Fig. 1

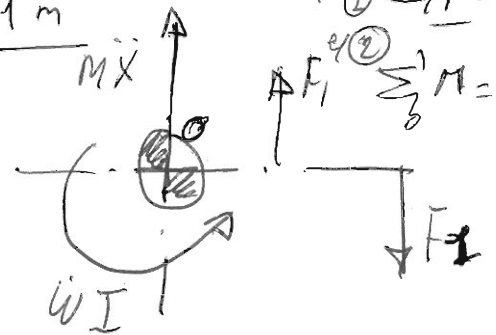
$M = 1\,kg$

$F_1 = 10\,N$

$R = 0.1\,m$

$v_0, \omega_0 = 0$





eq ① $\sum F = M\ddot{x}$

eq ② $\sum_O M = \dot{\Gamma}$

$\sum F_x = 0 = F_1 + m\ddot{x} - F_1$ (alt)

$\sum F_y = 0 = 0$ (alt)

$\sum_O M_o = \dot{\omega} I_z \Rightarrow \dot{\omega} I_z = F_1 \frac{R}{2} - F_1 R$

$\dot{\omega} I_z = -F_1 \frac{R}{2}$

I_z Disco omogeneo $= \frac{1}{2} M R^2 = 5 \cdot 10^{-3}\ kg\,m^2$

$\dot{\omega} = -\frac{F_1 R}{2 I_z} = -100\ \frac{1}{s^2}$

$\omega(t) = \omega_0 + \dot{\omega} t$ ($\omega_0 = 0$ per IP)

t tempo in secondi