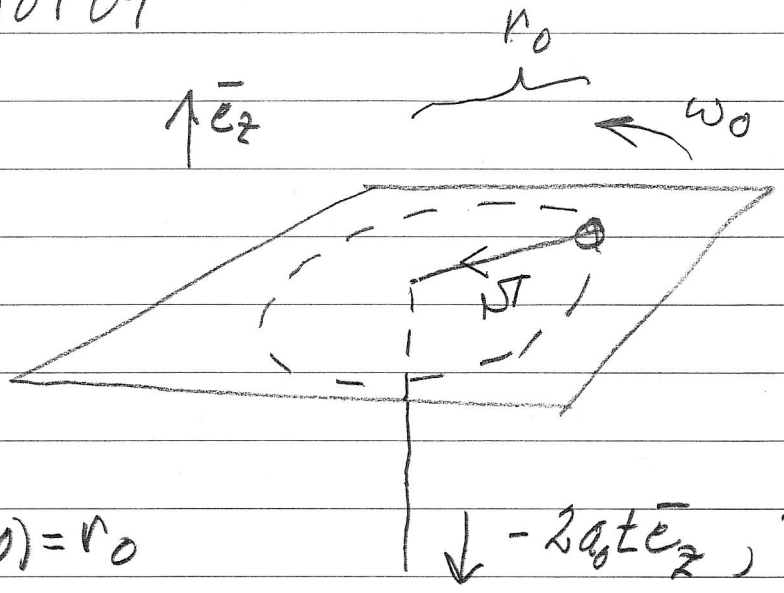
SG 1102 090109

Problem 3



Kinematiskt villkor

$\dot{r} = -2a_0t$, $r(0) = r_0$

$r = r_0 - a_0t^2$

Centralrörelse $\Rightarrow$ $r^2\dot{\theta} = r_0^2\omega_0$

$\dot{\theta} = \dfrac{r_0^2\omega_0}{(r_0 - a_0t^2)^2}$

$\bar{e}_n: \; m(\ddot{r} - r\dot{\theta}^2) = -N$

$N = m\left[2a_0 + \dfrac{r_0^4\omega_0^2}{(r_0 - a_0t^2)^3}\right]$