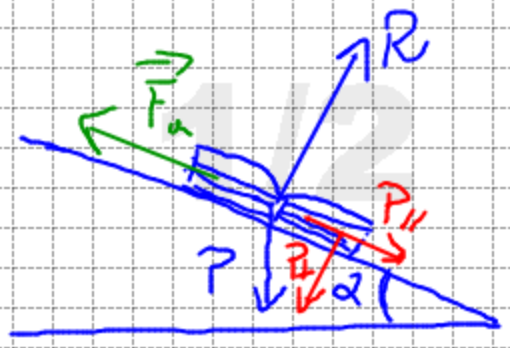
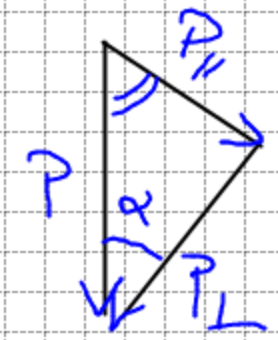
P1



m = massa libro $\quad \mu_s = 1$

$\vec{P}_{//} > \vec{F}_{as}$



$P_{//} = P \sin\alpha = mg\sin\alpha$

$F_{as} = P_\perp \mu_s = mg\cos\alpha\,\mu_s$

quando $P_{//} = F_{as}$ quindi $\vec{P}_{//} = -\vec{F}_{as}$ il libro è fermo

quando $P_{//} > F_{as}$ il libro inizia a scivolare giù:

$mg\sin\alpha > mg\cos\alpha\,\mu_s \qquad \frac{\sin\alpha}{\cos\alpha} > 1$

$\tan\alpha > 1 \qquad \alpha > 45°$

P2

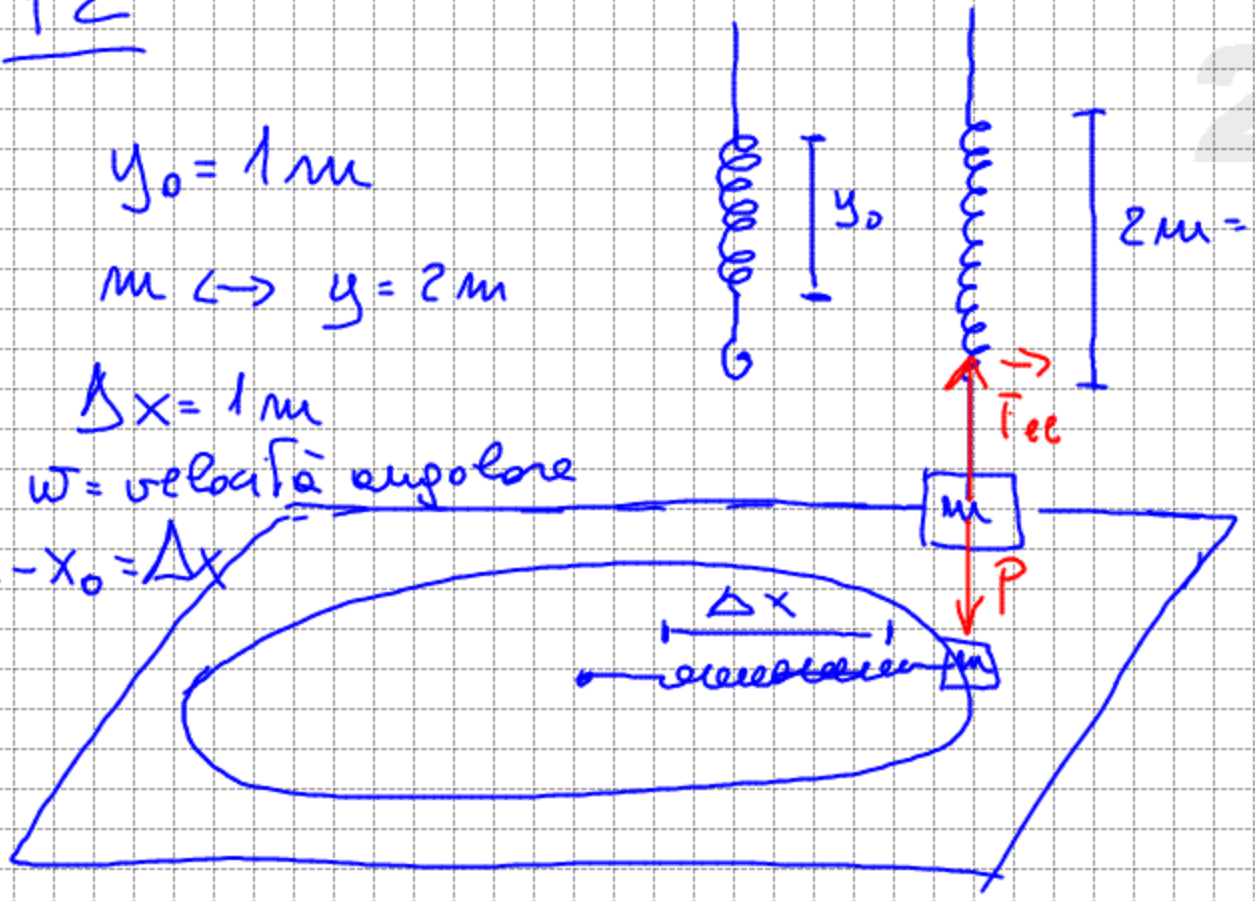
$y_0 = 1\,m$

$m \leftrightarrow y = 2\,m$

$\Delta x = 1\,m$

ω = velocità angolare

$x - x_0 = \Delta x$



$$mg = K(\underbrace{y - y_0}_{\Delta y})$$

$$K\Delta y = mg$$

$$K\Delta x = m\omega^2 x$$

$$\frac{\Delta y}{\Delta x} = \frac{g}{\omega^2 x}$$

$$\omega = \sqrt{\frac{\Delta x}{\Delta y}\frac{g}{x}}$$