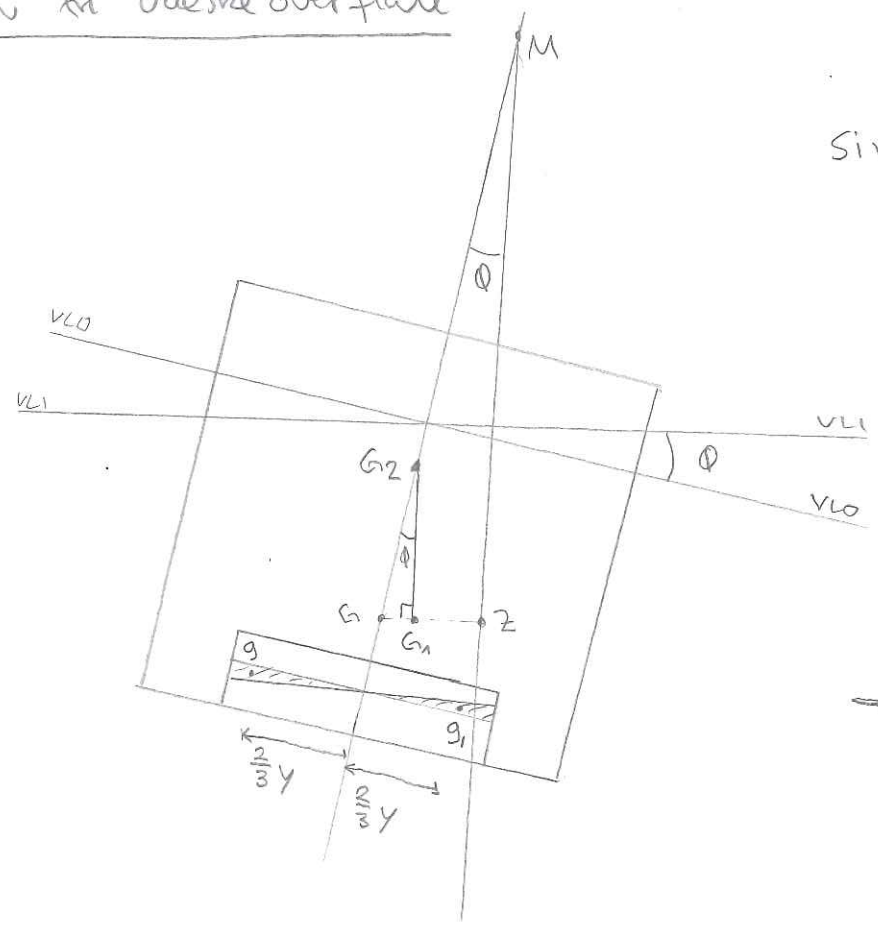
Effekt av fri vaeske overflate



$$\sin\theta = \frac{\overline{GG_1}}{\overline{GG_2}}$$

Areal kilvaeske

$A_k = \frac{1}{2} dz\, y$

$dz = y \tan\theta$

$\overline{GG_1}$ Tyngdepunkt forskyving eubart pga vaeske

$\overline{GG_2}$ Virtuell tyngdepunkt forskyving (tilsynelatende)

Ny $\overline{GM} = \overline{KB} + \overline{BM} - \overline{KG} - \overline{GG_2}$ ← søker $\overline{GG_2}$

$= \overline{KB} + \overline{BM} - (\overline{KG} + \overline{GG_2})$

Tyngdepunkt forskyving pga flyttet vaeske

$$\overline{GG_1} = \frac{v \cdot a}{\Delta} = \frac{m_l \cdot \overline{gg_1}}{\Delta}$$

$m_l = \rho_l \cdot V_l$ ρ_l: Tetthet vaeske

$\Delta = \rho \nabla$

$$\overline{GG_1} = \frac{\rho_l V_l \ \overline{gg_1}}{\rho \nabla}$$

$V_l = A_k \cdot l$ l: lengde kil

$= \frac{1}{2} y^2 \tan\theta\, l$

$gg_1 = 2\frac{2}{3} y$

$$\overline{GG_1} = \frac{\rho_l}{\rho} \frac{\frac{1}{2} y^2 \tan\theta\, l \cdot 2\frac{2}{3} y}{\nabla}$$

$$\overline{GG_1} = \frac{\rho_l}{\rho} \frac{\tan\theta \left(\frac{2}{3} y^3 l\right)}{\nabla}$$ ← i

i: Arealtreghetsmoment av fri vaeske overflate

$$\sin\theta\, \overline{GG_2} = \frac{\rho_l}{\rho} \frac{\tan\theta\, i}{\nabla}$$

$\overline{GG_1} = \overline{GG_2} \sin\theta$

små vinkler

ooo