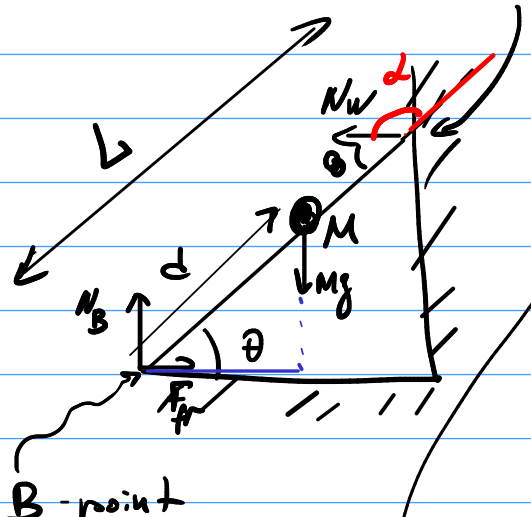


$$\sum \vec{F}_i = 0$$

x: $F_{fr} - N_w = 0$

y: $N_B - Mg = 0$

$N_B = Mg$

$\vec{\tau}_i = 0$

w.r. B $\quad \vec{\tau}_i = 0 = \vec{\tau}_g + \vec{\tau}_w =$

$= d \cdot Mg \cdot \cos\theta \, \hat{c}w + N_w \cdot L \cdot \sin\theta \, \hat{ccw}$

$= \left(d \cdot Mg \cdot \cos\theta - \underbrace{N_w}_{F_{fr}} \cdot L \sin\theta\right) \hat{c}w$

$\vec{\tau} = \vec{r} \times \vec{F}$

$= r \cdot F \cdot \sin\alpha$

$= r_\perp \cdot F$

$\sin\alpha = \sin(180 - \theta)$

$\theta + \alpha = 180$

$F_{fr} = \frac{d}{L} \cdot Mg \frac{\cos\theta}{\sin\theta} \leq \mu N_B$ ($N_B = Mg$)

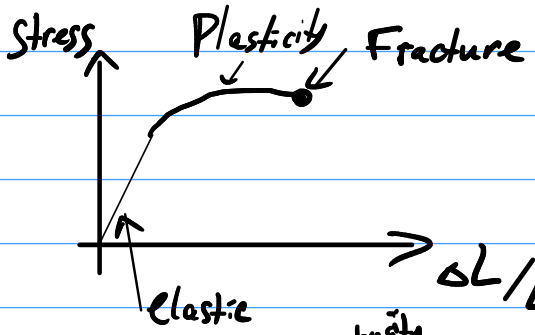
$\frac{d}{L} \cancel{Mg} \cdot \frac{\cos\theta}{\sin\theta} \leq \cancel{Mg} \cdot \mu$

$\frac{\sin\theta}{\cos\theta} = \tan\theta \geq \frac{d}{L} \frac{1}{\mu}$

$$\text{Stress} = \frac{F}{A} = \left[\frac{N}{m^2}\right] = [Pa]$$

$\frac{\Delta L}{L}$ ~ (coef) · Stress

Strain



granite

$S_{ult} = 170 \cdot 10^8 Pa$

$\approx 200 \cdot 10^8 Pa$

density $\rightarrow \rho \cdot V = A \cdot h$

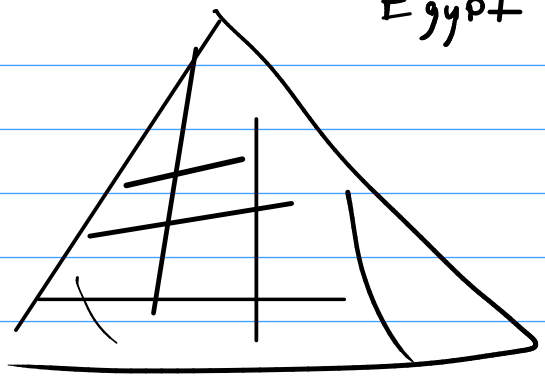
$$\text{Stress} = \frac{mg}{A} \leq S_{ult.}$$

$$\frac{\rho \cdot A \cdot h}{A} g \leq S_{ult.}$$

$$h \leq \frac{S_{ult}}{\rho \cdot g} = \frac{200 \cdot 10^8 Pa}{2000 \quad 10}$$

$$= \frac{2 \cdot 10^8}{2 \cdot 10^4} = 10^4 m = 10 km$$

Egypt



Greek