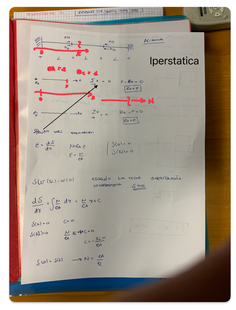
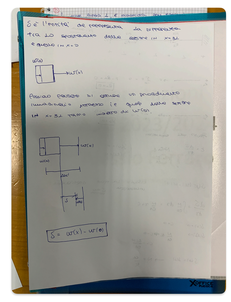
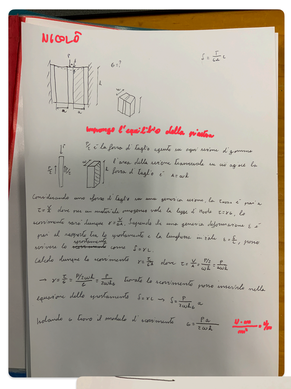
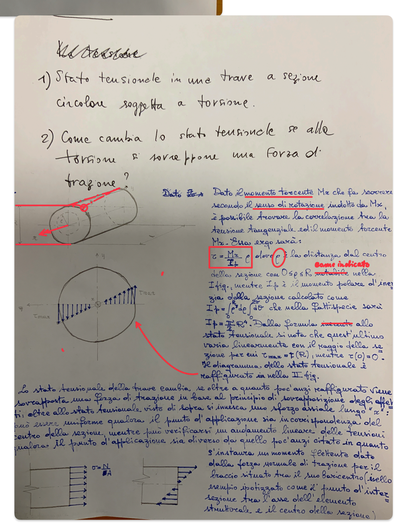
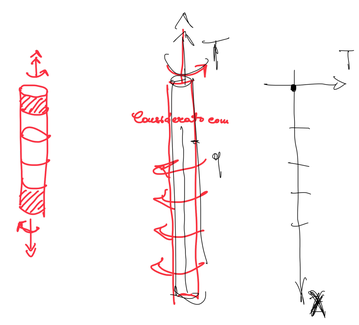
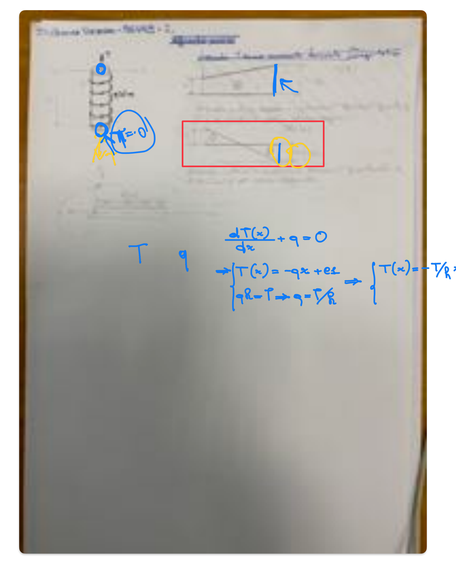

Iperstatica

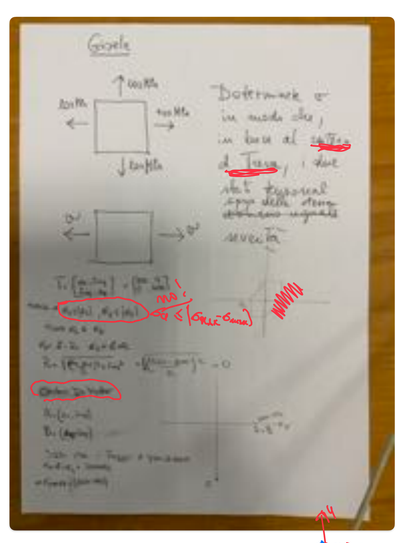


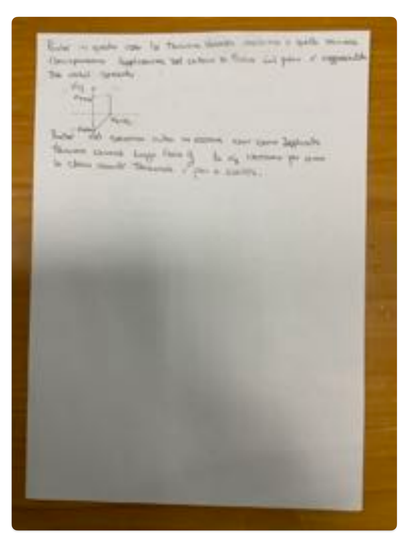

NICOLÒ

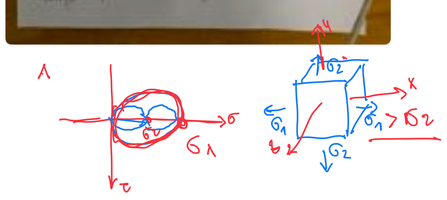

1) Stato tensionale in una trave a sezione circolare soggetta a torsione.
2) Come cambia lo stato tensionale se alla torsione si sovrappone una forza di trazione?

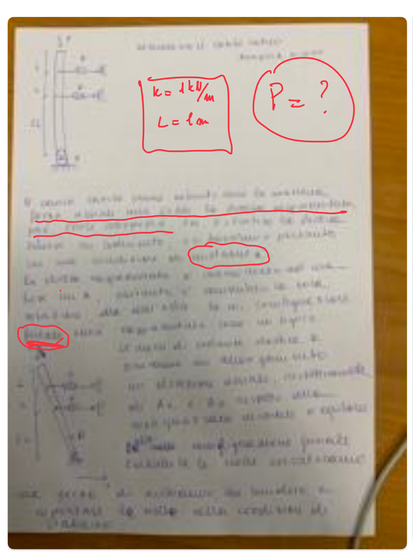

Considerato con
T
q

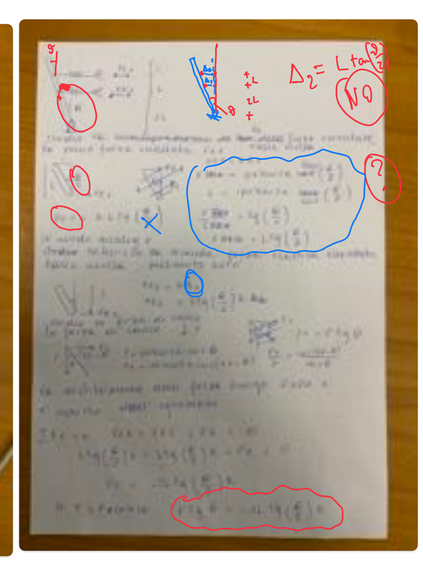

$\frac{dT(x)}{dx} + q = 0$
$T(x) = -qx + c_2$
$qR = T \rightarrow q = T/R$
$T(x) = -T/R\, x + c_2$


Gisele
Determinare in modo che, in base al stato di Tresca, i due stati tensionali sopra dello stesso ... siano equivalenti

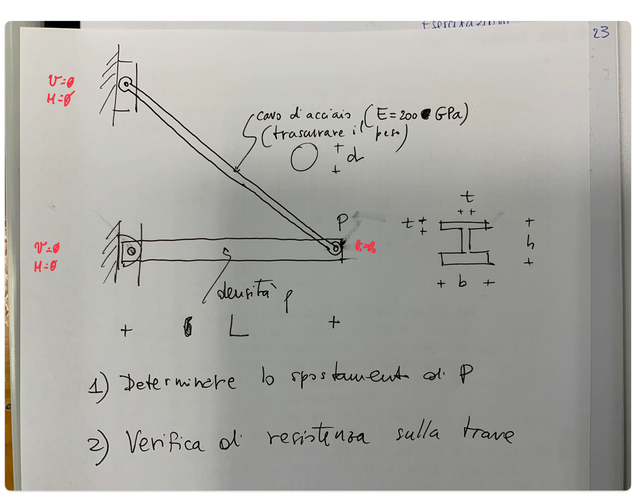


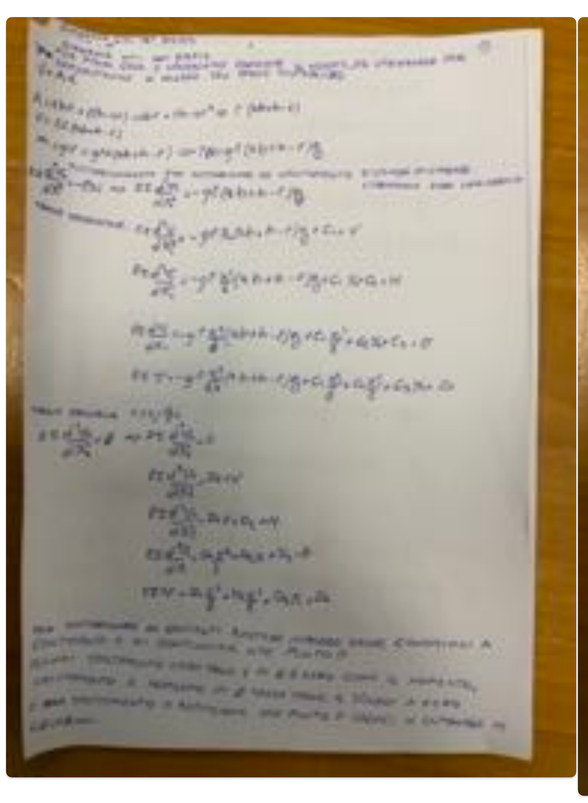

$\sigma_1$
$\sigma_2$
$\sigma_1 > \sigma_2$

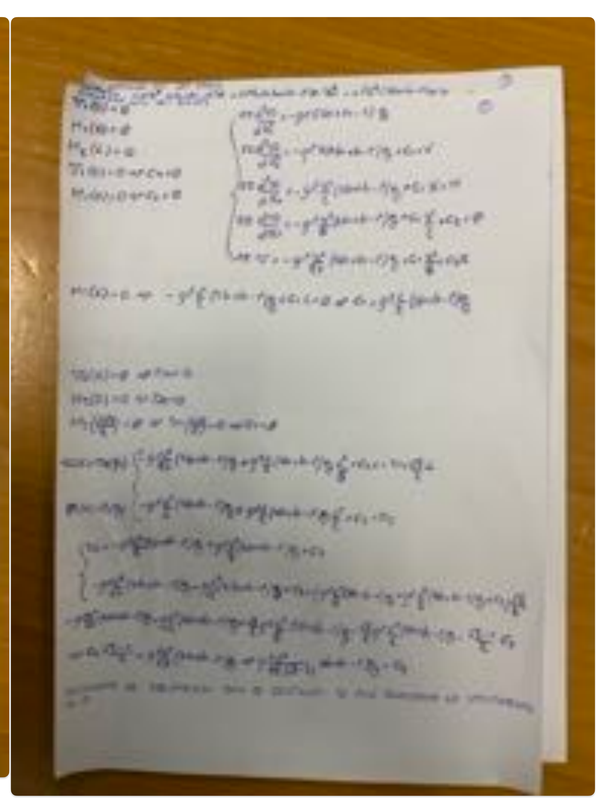

k = 1kN/m
L = 1m
P = ?

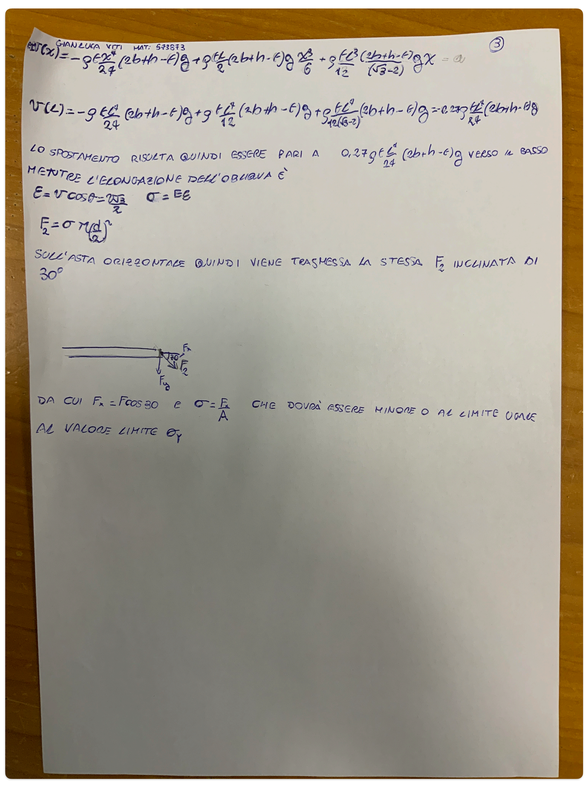

$\Delta_z = L \tan(\theta/2)$
NO
?

STABILE


V=0
H=0
cavo d'acciaio (trascurare il peso) (E=200 GPa)
d
P
b
h
densità ρ
L
1) Determinare lo spostamento di P
2) Verifica di resistenza sulla trave






$v(x) = -g\frac{tx^2}{24}(2b+h-t)g + g\frac{tL}{2}(2b+h-t)g\frac{x^2}{6} + g\frac{tL^3}{12}\frac{(2b+h-t)}{(\sqrt{3}-2)}gx$
$v(L) = -g\frac{tL^4}{24}(2b+h-t)g + g\frac{tL^4}{12}(2b+h-t)g + g\frac{tL^4}{12(\sqrt{3}-2)}(2b+h-t)g = 0.27 g\frac{tL^4}{24}(2b+h-t)g$
LO SPOSTAMENTO RISULTA QUINDI ESSERE PARI A $0.27 g\frac{tL^4}{24}(2b+h-t)g$ VERSO IL BASSO MENTRE L'ELONGAZIONE DELL'OBLIQUA È
$\varepsilon = v\cos\theta = \frac{v\sqrt{3}}{2}$ $\sigma = E\varepsilon$
$F_2 = \sigma A_{cd}$
SULL'ASTA ORIZZONTALE QUINDI VIENE TRASMESSA LA STESSA $F_2$ INCLINATA DI 30°
DA CUI $F_x = F\cos 30$ E $\sigma = \frac{F}{A}$ CHE DOVRÀ ESSERE MINORE O AL LIMITE UGUALE AL VALORE LIMITE $\sigma_y$