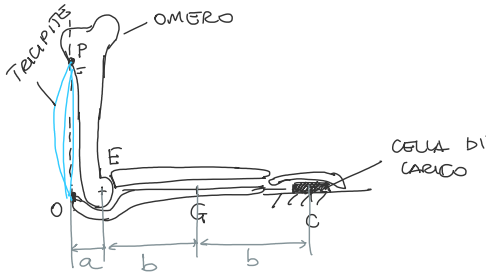


Esercizio Statica: cella di carico

giovedì 24 ottobre 2024 17:14



Nota: $|F_c| = 160 \text{ N}$

$$a = OE = 25 \text{ mm}$$

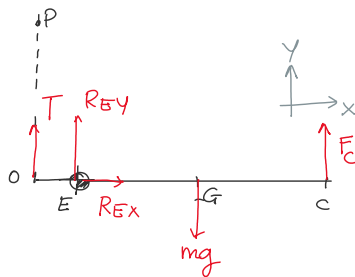
$$b = 150 \text{ mm}$$

$$m = 1,5 \text{ kg}$$

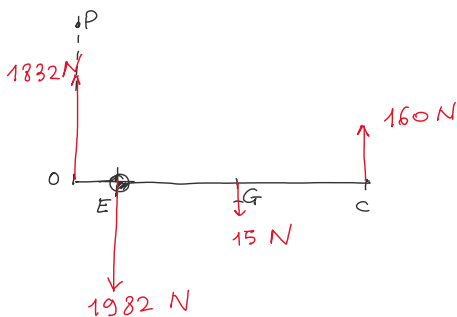
$$\vec{OP} \perp \vec{OE},$$

O, E, G, C allineati

DCL PRELIMINARE

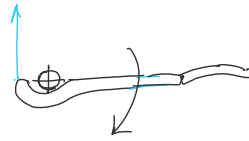


DCL DEFINIT.



$$\boxed{R_{Ey} < T} \Rightarrow$$

TRICIPITE \Rightarrow AZIONE L'ESTENSIONE DELL'AVAMBRACCIO



\Rightarrow Vogliamo stimare la forza sviluppata dal tricipite, misurando la forza $\Rightarrow T$ nella cella di carico

Eq^m EQUILIBRIO $\Rightarrow T, R_{EX}, R_{EY}$

$$\begin{cases} x \cdot \underline{i}) & R_{EX} = 0 \\ y \cdot \underline{j}) & T + R_{EY} - mg + F_c = 0 \\ E \cdot \underline{k}) & -Ta - mg b + F_c 2b = 0 \end{cases}$$

$$\begin{cases} R_{EX} = 0 \\ T = (2F_c - mg) \frac{b}{a} \\ R_{EY} = \underline{mg - F_c - T} \\ \quad = mg - F_c - (2F_c - mg) \frac{b}{a} \\ \quad = mg \left(\frac{a+b}{a} \right) - F_c \left(\frac{a+2b}{a} \right) \end{cases}$$

$$R_{EY} < T$$

$$\begin{cases} R_{EX} = 0 \text{ N} \\ T = 1832 \text{ N} \\ R_{EY} = -1982 \text{ N} < 0 \end{cases}$$

$$mg \left(\frac{a+b}{a} \right) - F_c \left(\frac{a+2b}{a} \right) < (2F_c - mg) \frac{b}{a}$$

$$mg(a+b) - F_c(a+2b) < 2F_c b - mg b$$

$$mg(a+2b) < F_c(a+b)$$

$$\parallel F_c > mg \left(\frac{a+2b}{a+b} \right) \parallel$$

