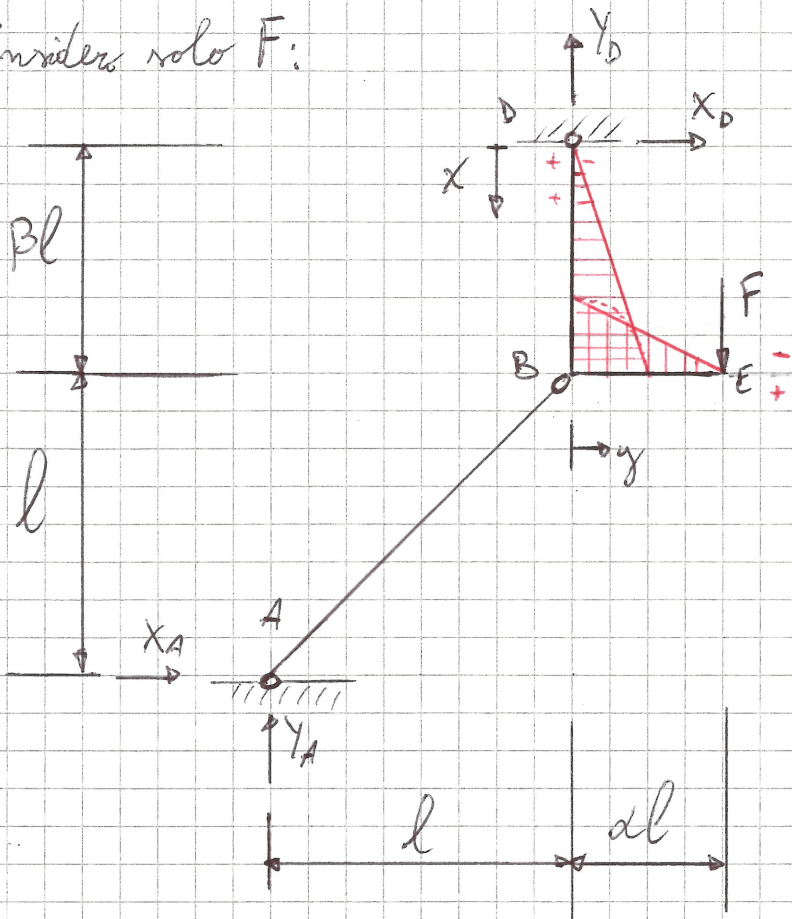


Esercizio 1.22.

Considera solo F:



Usa le equazioni di equilibrio:

$$\rightarrow \left. \begin{array}{l} X_D + X_A = 0 \\ Y_D - F + Y_A = 0 \end{array} \right\} \begin{array}{l} \textcircled{1} \\ \textcircled{2} \end{array} \rightarrow \begin{array}{l} X_D = -X_A = -Y_A = -F \cdot \frac{\alpha}{\beta} \\ Y_D = F - Y_A = F \frac{\beta - \alpha}{\beta} \end{array} \quad Y_A = F \cdot \frac{\alpha}{\beta} = X_A$$

$$\curvearrowleft \left. \begin{array}{l} Y_D \cdot l - X_D \cdot l(1 + \beta) - F \cdot l(1 + \alpha) = 0 \end{array} \right\} \textcircled{3}$$

$$\rightarrow F - Y_A + Y_A(1 + \beta) - F(1 + \alpha) = 0$$

Nota che la trave AB è una bracciola inclinata di 45° .

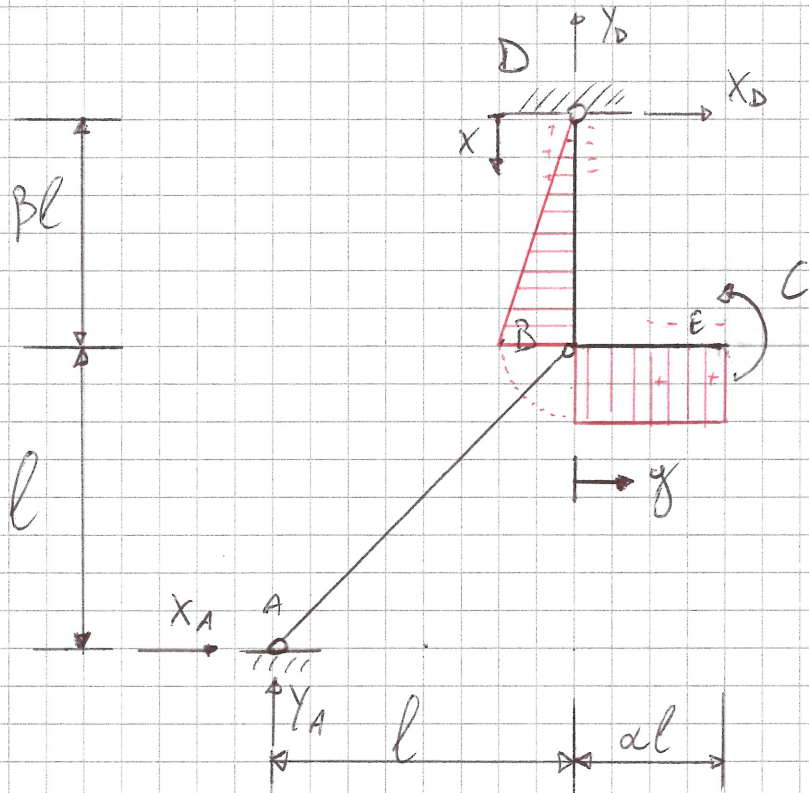
$$\curvearrowleft \left. \begin{array}{l} X_A = Y_A \end{array} \right\}$$

$$N_{AB, F} = -X_A \cdot \sqrt{2} = -F \cdot \frac{\alpha}{\beta} \cdot \sqrt{2} \quad (\angle 0 \text{ perché compressivo})$$

$$M_F(x) = -F \cdot \frac{\alpha}{\beta} \cdot x$$

$$M_F(y) = -F \cdot \frac{\alpha}{\beta} \cdot \beta l + F \cdot y = F \cdot y - F \cdot \alpha l$$

Considero ora la coppia C.



Uso le eq. di equilibrio.

$$\uparrow^+] Y_A + Y_D = 0 \quad \textcircled{1} \quad Y_D = -Y_A = + \frac{C}{l} \cdot \frac{1}{\beta}$$

$$Y_A = - \frac{C}{l} \cdot \frac{1}{\beta}$$

$$\rightarrow^+] X_A + X_D = 0 \quad \textcircled{2} \quad X_D = -X_A = -Y_A = + \frac{C}{l} \cdot \frac{1}{\beta}$$

$$\textcircled{3}] C + Y_D \cdot l - X_D \cdot l(1 + \beta) = 0 \quad \textcircled{3} \quad C - Y_A \cdot l + Y_A \cdot l(1 + \beta) = 0$$

La trave AB è una bielle.

$$\nearrow] X_A = Y_A \quad \textcircled{4} \quad X_A = - \frac{C}{l} \cdot \frac{1}{\beta}$$

$$N_{C,AB} = -X_A \cdot \sqrt{2} = + \frac{C}{l} \cdot \frac{\sqrt{2}}{\beta} \quad (> 0 \text{ perché trattivo})$$

$$M_{f_c}(x) = + \frac{C}{l} \cdot \frac{1}{\beta} \cdot x$$

$$M_{f_c}(y) = + C$$