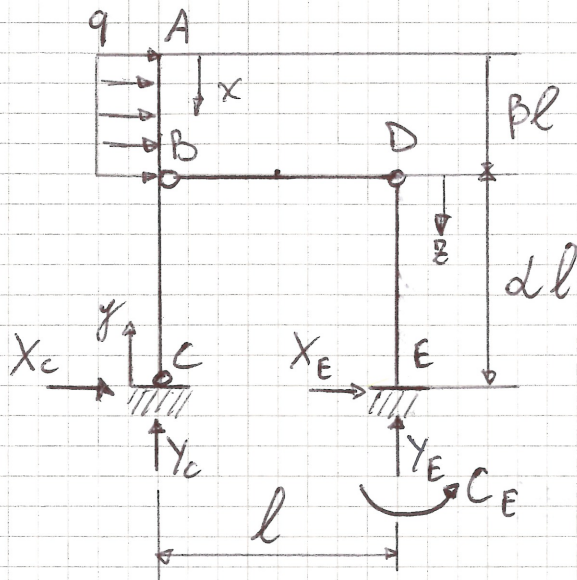
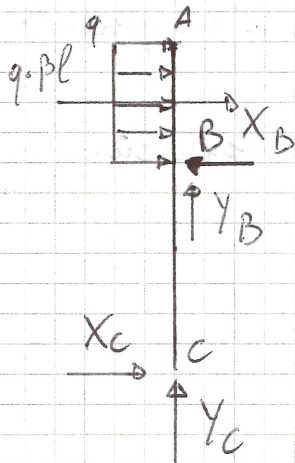


Esercizio 1.11



Calcolo le reazioni v.d. di questa struttura staticamente determinata
 (GIP: $2+2+2+3-3 \cdot 3=0$).

Divido la struttura nelle sue 3 travi.



$$\rightarrow \uparrow] \quad q \cdot pl + X_c - X_B = 0 \rightarrow q \cdot pl + q \cdot l \frac{\beta^2}{2d} = X_B = \frac{q \cdot l (\beta^2 + 2d\beta)}{2d}$$

$$\uparrow \uparrow] \quad Y_c + Y_B = 0 \rightarrow Y_c = 0$$

$$\rightarrow \uparrow \uparrow] \quad X_c \cdot d = q \cdot pl \cdot \frac{\beta l}{2} \rightarrow X_c = q \cdot l \cdot \frac{\beta^2}{2d}$$

Inserisco un'equazione perché mi accorgo che \overline{BD} è una bielletta.

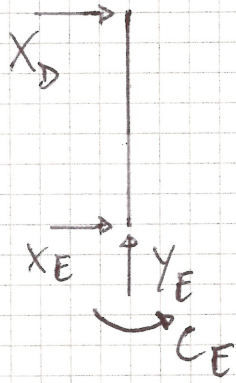
$$\rightarrow \uparrow \uparrow] \quad Y_B = 0$$

Passo alla bielletta \overline{BD}



$$X_B = X_D = + \frac{q \cdot l (\beta^2 + 2d\beta)}{2d}$$

Ultima trave \overline{DE}



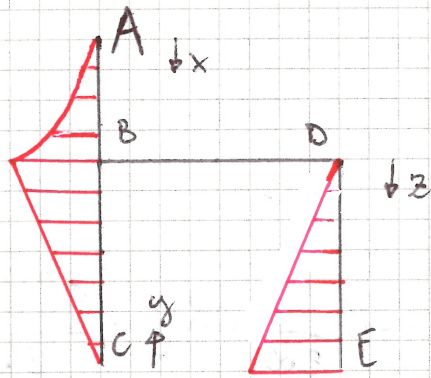
$$\rightarrow \sum X = 0 \rightarrow X_D + X_E = 0 \rightarrow X_E = -q l \frac{(\beta^2 + 2d\beta)}{2d}$$

$$\uparrow \sum Y = 0 \rightarrow Y_E = 0$$

$$\sum M = 0 \rightarrow C_E = X_D \cdot d l = q l^2 \frac{(\beta^2 + 2d\beta)}{2}$$

$$N_{BD} = -|X_D| = -q l \frac{\beta^2 + 2d\beta}{2d}; \text{ negativo in quanto compressivo.}$$

Disegno l'andamento di M_f sulla struttura.



Il modulo di M_f in A, B (appartenente a ABC), D e E.

$$|M_f(A)| = 0; |M_f(B)| = |X_C \cdot d l| = q l \frac{\beta^2}{2d} \cdot d l; |M_f(D)| = 0; |M_f(E)| = |X_D \cdot d l| = q l \left(\frac{\beta^2 + 2d\beta}{2d} \cdot d l \right)$$

$$M_{fAB}(x) = q \cdot \frac{x^2}{2};$$

$$M_{fCB}(y) = X_C \cdot y = q l \frac{\beta^2}{2d} \cdot y;$$

$$M_{fDE}(z) = X_D \cdot z = q l \frac{(\beta^2 + 2d\beta)}{2d} \cdot z$$