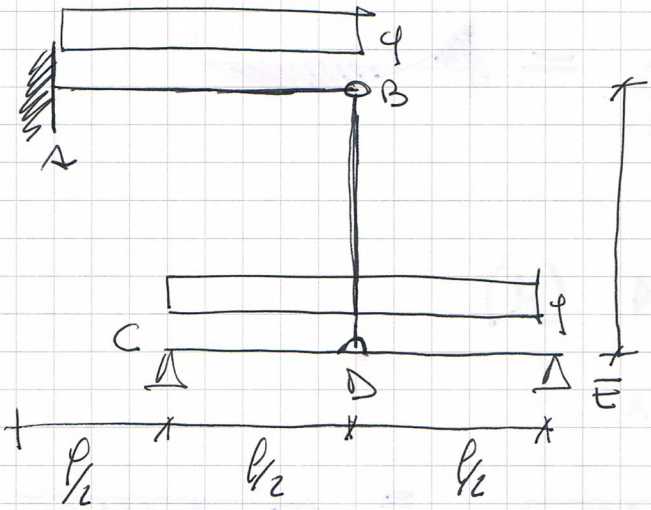
ESERCIZIO 2

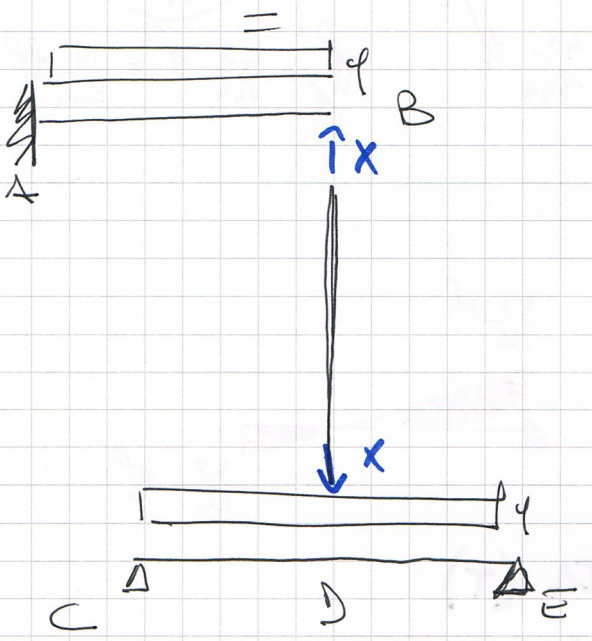


2 volte iperstatico

$$v_B = v_D$$

① $v_B = v_B(q) + v_B(x)$

② $v_D = v_D(q) + v_D(x)$



④ $v_B(q) = \dfrac{q\ell^4}{8EJ}$

$v_B(x) = \dfrac{x\ell^3}{3EJ}$

② $v_D(q) = \dfrac{5}{384}\dfrac{q\ell^4}{EJ}$

$v_D(x) = \dfrac{x\ell^3}{48EJ}$

$$\Rightarrow \quad \frac{q\ell^4}{8\cancel{EJ}} - \frac{x\ell^3}{3\cancel{EJ}} = \frac{5}{384}\frac{q\ell^4}{\cancel{EJ}} + \frac{x\ell^3}{48\cancel{EJ}}$$

$$-\frac{x}{3} - \frac{x}{48} = \frac{5}{384}q\ell - \frac{q\ell}{8}$$

$$\frac{-17}{48}x = \frac{5-48}{384}q\ell \quad \rightarrow \quad X = \frac{43}{\cancel{384}_{8}}q\ell \cdot \frac{\overset{1}{\cancel{48}}}{17} = \frac{43}{136}q\ell$$

$$\boxed{X = \frac{43}{136}q\ell}$$