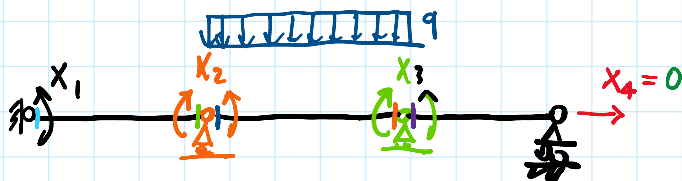
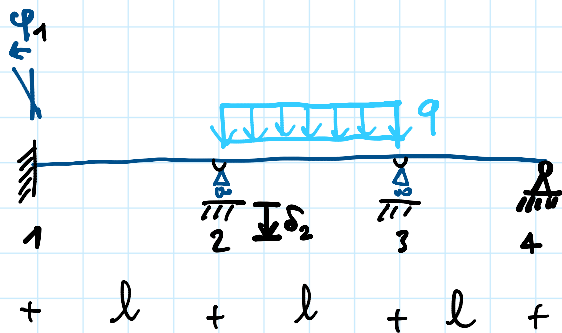


# Esempio equazione dei tre momenti ESEMPIO

Sunday, 8 November 2020 06:22



$$\varphi_1 = \varphi_{12} = \frac{x_1 l}{3EI} + \frac{x_2 l}{6EI} - \frac{\delta_2}{l}$$

$$\varphi_{21} = -\frac{x_2 l}{3EI} - \frac{x_1 l}{6EI} - \frac{\delta_2}{l}$$

$$\parallel$$

$$\varphi_{23} = \frac{x_2 l}{3EI} + \frac{x_3 l}{6EI} + \frac{\delta_2}{l} - \frac{q l^3}{24EI}$$

$$\varphi_{32} = -\frac{x_3 l}{3EI} - \frac{x_2 l}{6EI} + \frac{\delta_2}{l} + \frac{q l^3}{24EI}$$

$$\parallel$$

$$\varphi_{34} = \frac{x_3 l}{3EI}$$

Eq. cong.

$$\varphi_{12} = \varphi_1$$

$$\varphi_{21} = \varphi_{23}$$

$$\varphi_{32} = \varphi_{34}$$

Vogliamo scrivere il sistema nella forma  $\underline{F} \underline{X} = \underline{b}_0 \in \mathbb{R}^3$ , con  $\underline{X} = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$

$\mathbb{R}^{3 \times 3}$

$$\frac{l}{EI} \begin{bmatrix} \frac{1}{3} & \frac{1}{6} & 0 \\ \frac{1}{6} & \frac{2}{3} & \frac{1}{6} \\ 0 & \frac{1}{6} & \frac{2}{3} \end{bmatrix} \begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} = \begin{bmatrix} \delta_2/l \\ -2\delta_2/l \\ \delta_2/l \end{bmatrix} + \begin{bmatrix} \varphi_1 \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} 0 \\ \frac{ql^3}{24EI} \\ + \frac{ql^3}{24EI} \end{bmatrix}$$

Es. per casa: calcolare  $X_1, X_2, X_3$  e tracciare il diagramma del momento.