

$$\begin{aligned} \bar{S}_{11} &= \frac{1}{EJ} \left[ \frac{1}{2} \cdot l \cdot l \cdot \frac{2}{3}l + \frac{1}{2} \cdot l \cdot l \cdot \frac{2}{3}l + \frac{1}{2} \cdot l \cdot l \cdot \frac{2}{3}l + l \cdot l \cdot l \right] = 2 \frac{l^3}{EJ} \\ \bar{S}_{12} &= \frac{1}{EJ} \left[ \frac{1}{2} \cdot l \cdot l \cdot (-l) \right] = -\frac{1}{2} \frac{l^3}{EJ} \\ \bar{S}_{21} &= \frac{1}{EJ} \left[ l \cdot l \cdot \left(-\frac{1}{2}l\right) \right] = -\frac{1}{2} \frac{l^3}{EJ} \\ \bar{S}_{22} &= \frac{1}{EJ} \left[ l \cdot 2l \cdot l + \frac{1}{2} \cdot l \cdot l \cdot \frac{2}{3}l \right] = \frac{2}{3} \frac{l^3}{EJ} \end{aligned}$$

$$\varphi = \frac{\Delta}{l}$$

$$\begin{aligned} \Delta_{1P} &= -\sum R \cdot \Delta = -\left(-l \cdot \frac{\Delta}{l} - \Delta \cdot 0\right) = +\Delta \\ \Delta_{2P} &= -\sum R \cdot \Delta = -\left(-l \cdot \frac{\Delta}{2} - \Delta \cdot 1\right) = +2\Delta \end{aligned}$$

$$\begin{cases} 2 \cdot x_1 - \frac{1}{2} \cdot x_2 + \Delta = 0 \\ -\frac{1}{2} \cdot x_1 + \frac{2}{3} \cdot x_2 + 2\Delta = 0 \quad / \cdot 4 \end{cases}$$

$$\begin{cases} 2 \cdot x_1 - \frac{1}{2} x_2 + \Delta = 0 \\ -2 \cdot x_1 + \frac{28}{3} x_2 + 8\Delta = 0 \end{cases}$$

$$\frac{28}{3} x_2 - \frac{1}{2} x_2 + 9\Delta = 0$$

$$\frac{56}{6} x_2 - \frac{3}{6} x_2 + 9\Delta = 0$$

$$\frac{53}{6} x_2 = -9\Delta$$

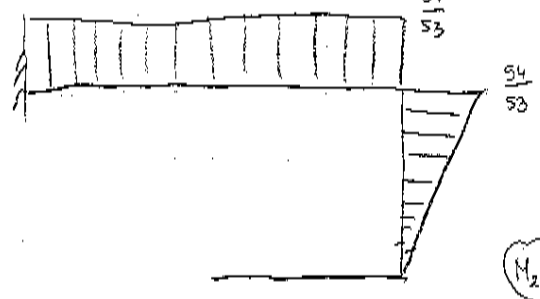
$$x_2 = -9 \cdot \frac{6}{53} = -\frac{54}{53} \frac{EJ \cdot \Delta}{l^3}$$

$$2x_1 + \frac{1}{2} \cdot \frac{54}{53} + 1 = 0$$

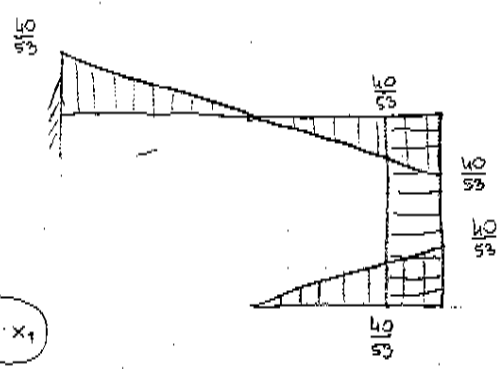
$$2x_1 = -\frac{80}{53}$$

$$x_1 = -\frac{40}{53} \frac{EJ \cdot \Delta}{l^3}$$

2

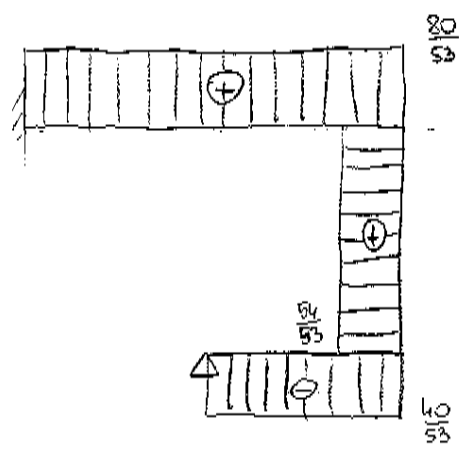


$H_2 \cdot X_2$



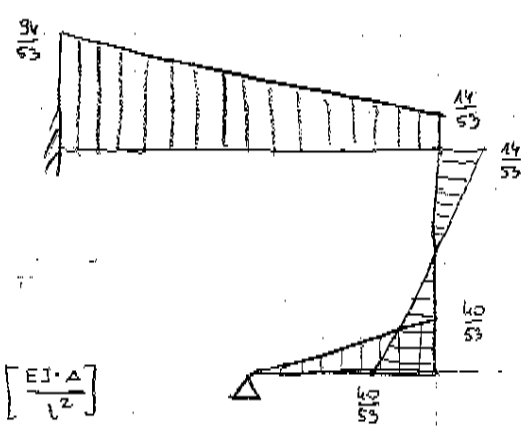
$H_1 \cdot X_1$

$\left[ \frac{EJ \cdot \Delta}{l^2} \right]$



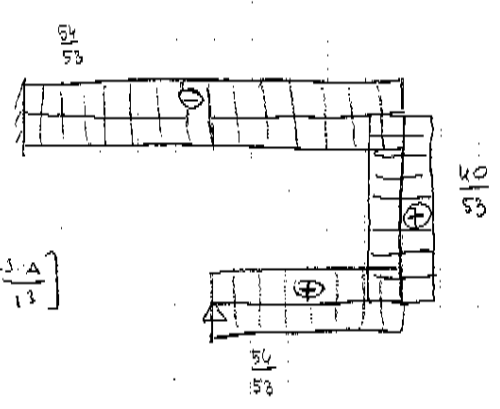
T

$\left[ \frac{ET \cdot \Delta}{l^3} \right]$



M

$\left[ \frac{EJ \cdot \Delta}{l^2} \right]$



N

$\left[ \frac{EJ \cdot \Delta}{l^3} \right]$

*Handwritten signature*