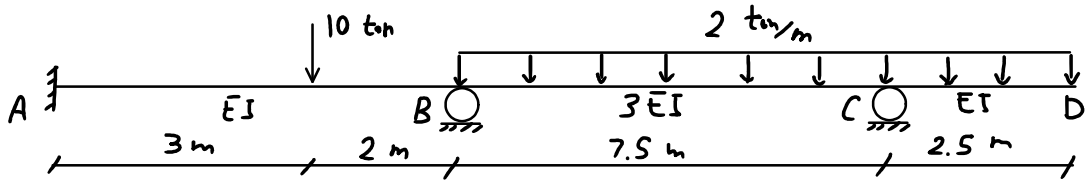
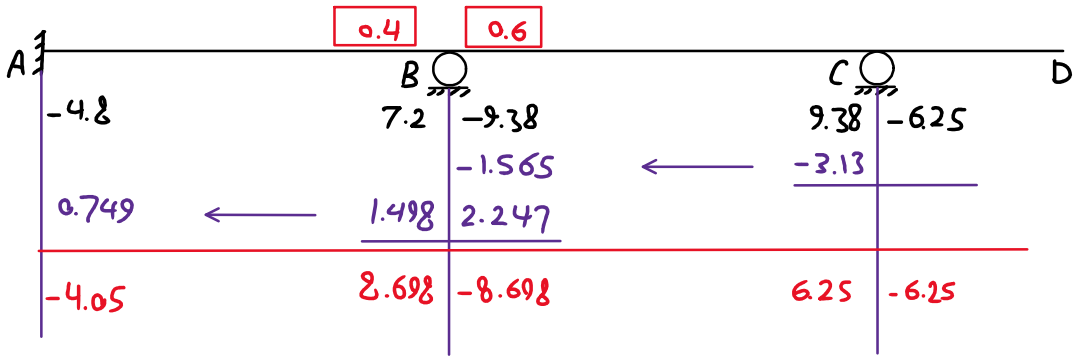
Moment Distribution 5

Wednesday, March 27, 2024 16:11

محاسبه دوران θ

مثال: دوران θ_B و θ_C را بیدا کنید.



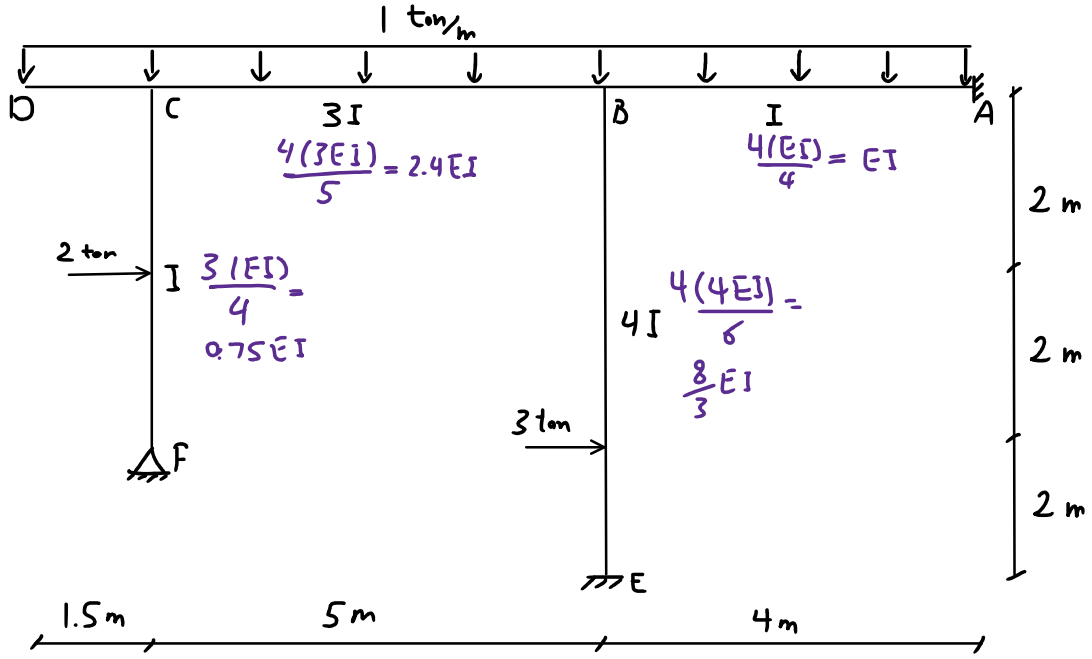


$$M_{BA} = \frac{2EI}{L}(2\theta_B) + FEM_{BA}$$

$$8.698 = \frac{4EI}{5}\theta_B + 7.2 \rightarrow \theta_B = \frac{1.87}{EI}$$

$$6.25 = M_{CB} = \frac{4(3EI)}{7.5}\theta_C + \frac{2(3EI)}{7.5}\left(\frac{1.87}{EI}\right) + 9.38 \rightarrow \theta_C = -\frac{2.89}{EI}$$

مثال: دوران θ_B و θ_C را بیدا کنید.



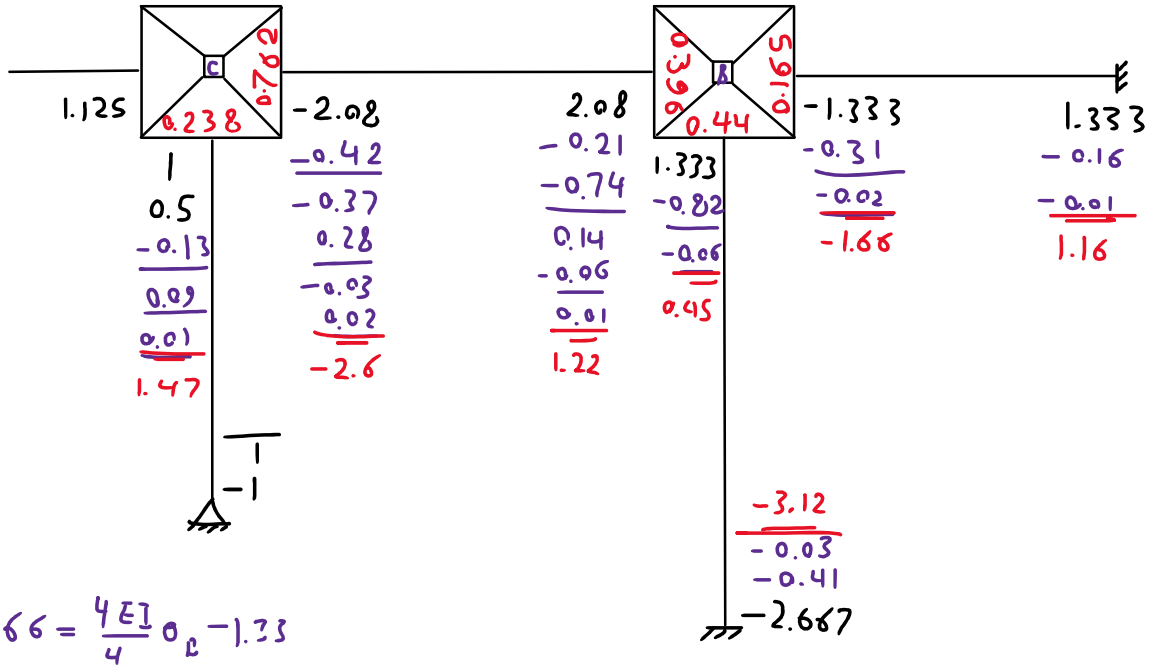
$$0.45 = M_{BE} = \frac{4(4EI)}{6}\theta_B + 1.333 FEM_{BE} \rightarrow \theta_B = -\frac{0.33}{EI}$$

$$M_{CE} = \frac{3EI}{\quad}\theta_C + (FEM_{\quad} - \tfrac{1}{2}FEM_{\quad}) \text{ is} \rightarrow \theta_C = -\frac{0.04}{\quad}$$

$$M_{CF} = \frac{3EI}{4}\theta_C + FEM_{CF} - \frac{1}{2}FEM_{FC} \quad (1.47,\ 1.5) \rightarrow \theta_C = -\frac{0.04}{EI}$$

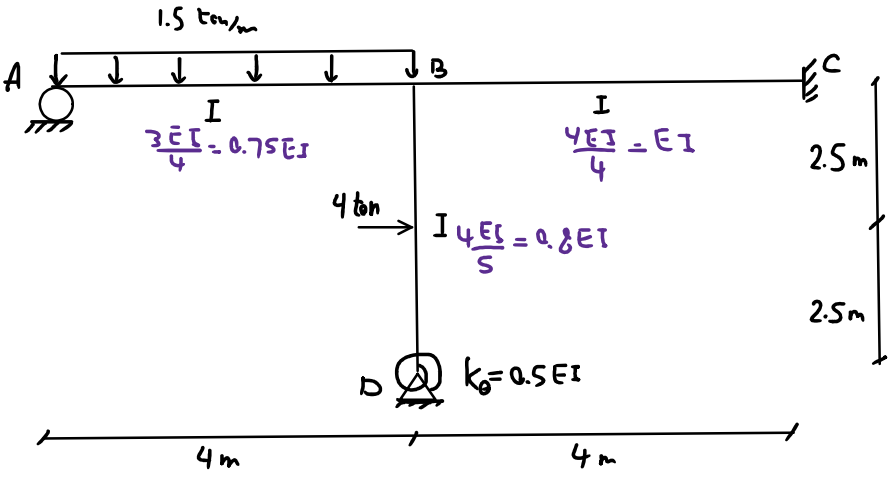
$$M_{FC} = \frac{4EI}{4}\theta_F + \frac{2EI}{4}\theta_C + FEM_{FC}$$

$$0 = EI\theta_F + \frac{1}{2}EI\left(\frac{-0.04}{EI}\right) - 1 \rightarrow \theta_F = \frac{1.02}{EI}$$



$$-1.66 = \frac{4EI}{4}\theta_B - 1.33$$

مثال: تاب شکل زیر را به روش توزیع لنگر تحلیل کنید.



DF

$\frac{0.75}{2.55} = 0.294$

$\frac{0.8}{2.55} = 0.314$

$\frac{1}{2.55} = 0.392$

$\frac{0.8}{1.3} = 0.615$

$\frac{0.5}{1.3} = 0.385$

درجه آزادی ندارد

θ_B ، θ_D

(۲) محاسبه دوران گره پس از محاسبه لنگرهای انتقالی

$$\theta_D = \frac{M_S}{k} = \frac{1.37}{0.5EI} = \frac{2.74}{EI}$$

محاسبه دوران گره بی از محاسبه لنگرهای انتهایی

$$\theta_D = \frac{M_S}{K_\theta} = \frac{1.37}{0.5EI} = \frac{2.74}{EI}$$

$$M_{BC} = \frac{4EI}{4}\theta_D \rightarrow \theta_B = \frac{-2.59}{EI}$$

$$M_{BA} = \frac{3EI}{4}\theta_B + 3 \rightarrow \theta_D = \frac{-2.59}{EI}$$