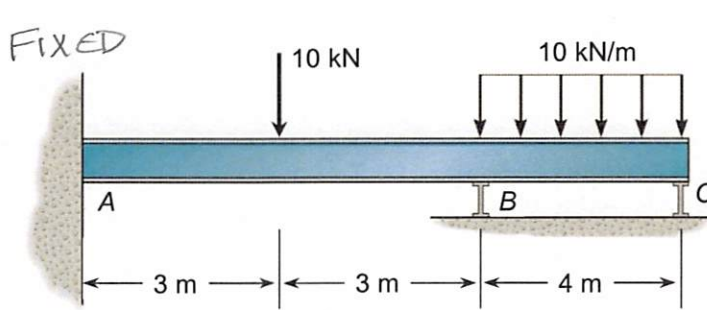


Determine the moments at A and B. Assume A is fixed, B and C are rollers, and EI is constant.



$$FEM_{AB} = \frac{PL}{8} = \frac{10\text{ kN}(6\text{ m})}{8} = \underline{\underline{\pm 7.5\text{ kNm}}}$$

$$FEM_{BC} = \frac{WL^2}{8} = \frac{10\text{ kN/m}(4\text{ m})^2}{8} = \underline{\underline{\pm 20\text{ kNm}}}$$

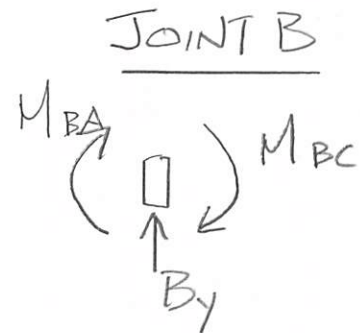
SECTION AB - 2 EQNS.

$$M_{AB} = \frac{2EI}{6\text{ m}} [2\phi_A + \theta_B - 3\psi] - 7.5\text{ kNm} \quad (1)$$

$$M_{BA} = \frac{2EI}{6\text{ m}} [2\theta_B + \phi_A - 3\psi] + 7.5\text{ kNm} \quad (2)$$

SECTION BC - 1 EQN

$$M_{BC} = \frac{3EI}{4\text{ m}} [\theta_B - \psi] - 20\text{ kNm} \quad (3)$$



$$\sum M_B = 0 = -M_{BA} - M_{BC} \quad (4)$$

$$\begin{aligned} (4) \quad M_{BA} + M_{BC} &= 0 = \frac{2EI}{6\text{ m}} [2\theta_B] + 7.5\text{ kNm} \\ &\quad + \frac{3EI}{4\text{ m}} [\theta_B] - 20\text{ kNm} \end{aligned}$$

$$\Rightarrow \frac{17}{12\text{ m}} \theta_B = 12.5\text{ kNm}$$

$$\underline{\underline{\theta_B = \frac{150\text{ kNm}^2}{17EI}}}$$

$$\underline{\underline{M_{AB} = -4.559\text{ kNm}}}$$

$$\underline{\underline{M_{BA} = 13.382\text{ kNm}}}$$

$$\underline{\underline{M_{BC} = -13.382\text{ kNm}}}$$