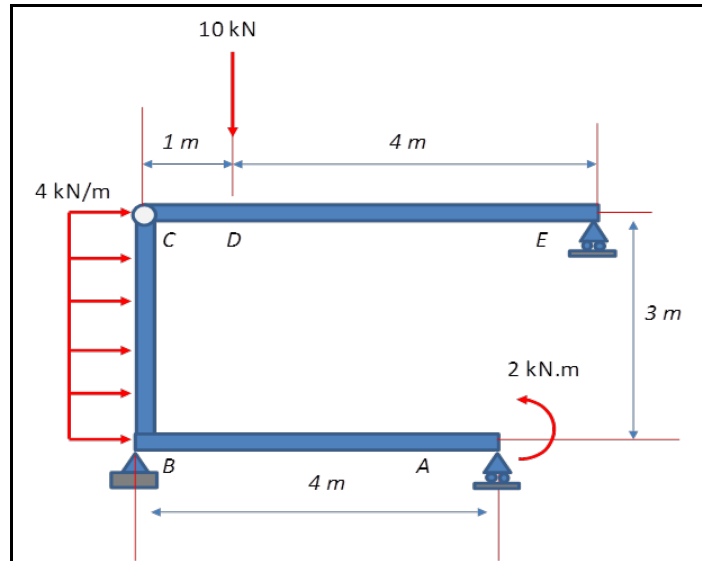




REACTION FORCES:

$$\sum M_c = 0 \rightarrow 5V_e - 10 \cdot 1 = 0 \rightarrow V_e = 2 \text{ kN}$$

$$\sum M_b = 0 \rightarrow 2.5 - 10 \cdot 1 + 4V_a + 2 - 4.3 \cdot \frac{3}{2} = 0 \rightarrow V_a = 4 \text{ kN}$$

$$\sum F_y = 0 \rightarrow V_B + 4 + 2 - 10 = 0 \rightarrow V_b = 4 \text{ kN}$$

$$\sum F_x = 0 \rightarrow H_b = -12 \text{ kN}$$

INTERNAL FORCES:

Stretch AB:

$$N_{AB} = 0 \text{ kN}; V_{AB} = -4 \text{ kN} \quad 4 \cdot (4 - x) + 2 - M_{AB} = 0 \rightarrow M_{AB} = 18 - 4x \text{ kN.m}$$

Stretch BC:

$$4 + 4 + N_{BC} = 0 \text{ kN} \rightarrow N_{BC} = -8 \text{ kN}$$

$$-12 + 4y + V_{BC} = 0 \text{ kN} \rightarrow V_{BC} = 12 - 4y \text{ kN}$$

$$-4.4 - 2 + 12y - 2y^2 - M_{BC} = 0 \text{ kN.m} \rightarrow M_{BC} = -2y^2 + 12y - 18 \text{ kN.m}$$

$$M_{BC}^{\max} \rightarrow \frac{dM_{BC}(y)}{dy} = V_{BC}(y) = 0 \rightarrow \forall y \in (0,2) \rightarrow M_{BC}^{\max}(y=0) = 18 \text{ kN.m}$$

Stretch ED:

$$N_{ED} = 0 \text{ kN}; V_{ED} = -2 \text{ kN}; M_{ED} = 2 \cdot (5 - x) \rightarrow M_{ED} = 10 - 2x \text{ kN.m}$$

Stretch CD:

$$N_{DC} = 0 \text{ kN}$$

$$2 - 10 + V_{DC} = 0 \text{ kN} \rightarrow V_{DC} = 8 \text{ kN}$$

$$2 \cdot (5 - x) - 10 \cdot (1 - x) - M_{DC} = 0 \text{ kN.m} \rightarrow M_{DC} = 8x \text{ kN.m}$$

