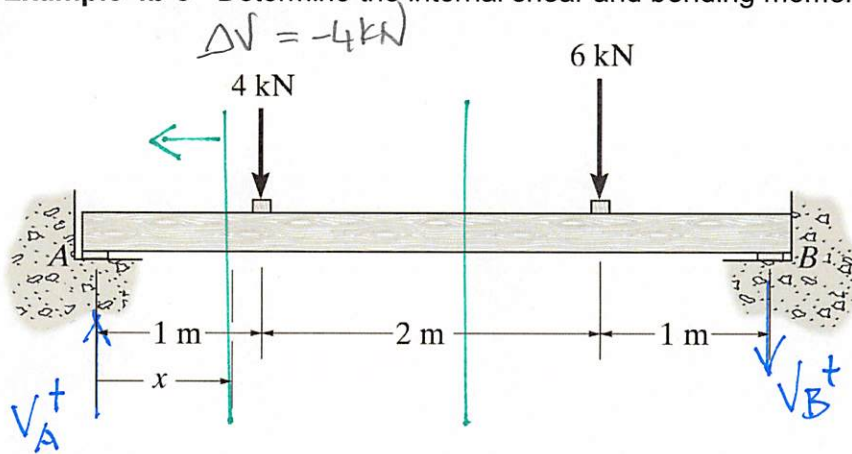


Example 4b-8 - Determine the internal shear and bending moment as a function of x .



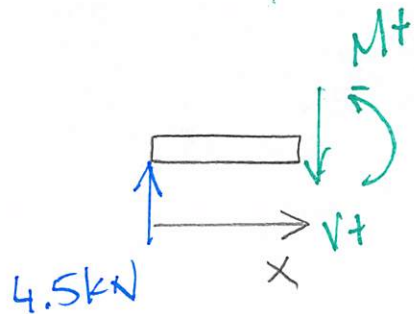
$$\sum \overset{\curvearrowleft}{M}_B = 0 = 6\text{ kN}(1\text{ m}) + 4\text{ kN}(3\text{ m}) - V_A(4\text{ m})$$

$$\underline{V_A = 4.5\text{ kN}}$$

$$\sum \uparrow F_y = 0 = V_A - V_B - 4\text{ kN} - 6\text{ kN}$$

$$\underline{V_B = -5.5\text{ kN}}$$

$$\underline{0 \leq x \leq 1\text{ m}}$$



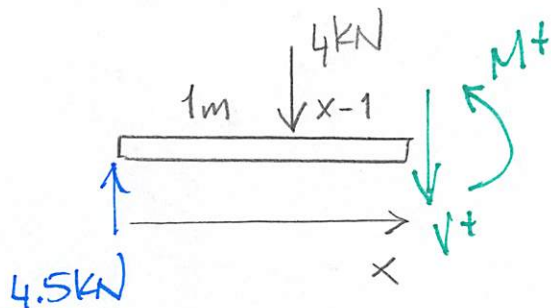
$$\sum \overset{\curvearrowleft}{M}_{cut} = 0 = M - 4.5\text{ kN}(x)$$

$$\underline{M(x) = [4.5x]\text{ kNm}} \quad M(x=0) = 0 \quad \checkmark$$

$$\sum \uparrow F_y = 0 = -V + 4.5\text{ kN}$$

$$\underline{V(x) = 4.5\text{ kN}} \quad V(x=0) = 4.5\text{ kN} \quad \checkmark$$

$$\underline{1 \leq x \leq 3\text{ m}}$$



$$\sum \overset{\curvearrowleft}{M}_{cut} = 0 = M + 4(x-1) - 4.5(x)$$

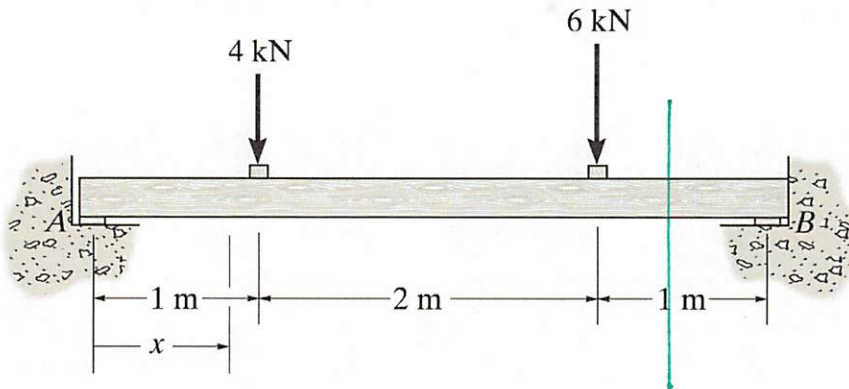
$$\underline{M(x) = [4.5x - 4(x-1)]\text{ kNm}}$$

$$M_I(x=1) = M_{II}(x=1) \quad \checkmark$$

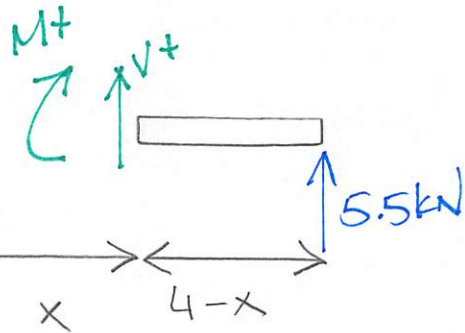
$$\sum \uparrow F_y = 0 = -V - 4\text{ kN} + 4.5\text{ kN}$$

$$\underline{V = 0.5\text{ kN}}$$

Example 4b-8 - Determine the internal shear and bending moment as a function of x .



$$3 \leq x \leq 4 \text{ m}$$



$$\sum M_{\text{cut}} = 0 = -M + 5.5(4-x)$$

$$M(x) = [5.5(4-x)] \text{ kN}\cdot\text{m}$$

$$M(x=4 \text{ m}) = 0 \quad \checkmark$$

$$\sum F_y = 0 = V + 5.5 \text{ kN}$$

$$V(x) = -5.5 \text{ kN}$$

$$V(x=4 \text{ m}) = -5.5 \text{ kN} \quad \checkmark$$