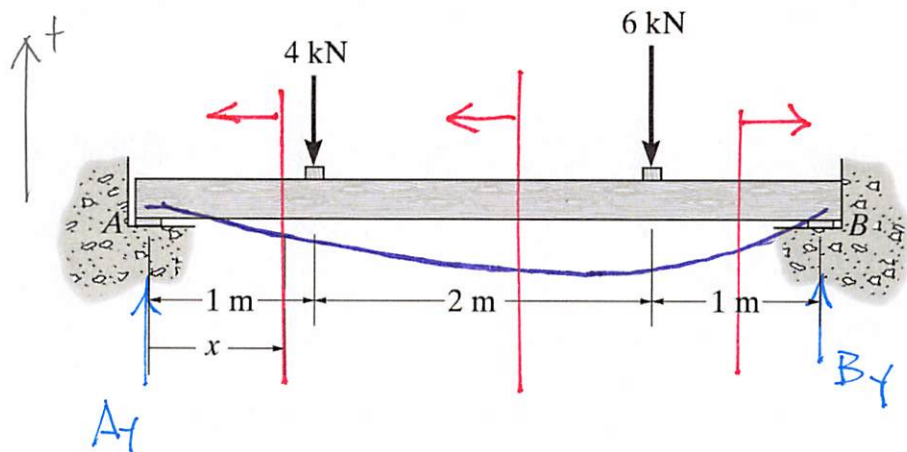


Example 4b-8 - Determine the internal shear and bending moment as a function of x .



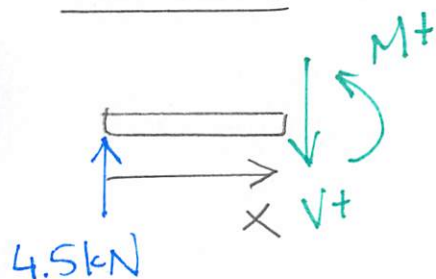
$$\sum \overset{\curvearrowleft}{M}_B = 0 = 4\text{ kN}(3\text{ m}) + 6\text{ kN}(1\text{ m}) - A_y(4\text{ m})$$

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

$$+\uparrow \sum F_y = 0 = A_y + B_y - 4\text{ kN} - 6\text{ kN}$$

$$\underline{B_y = 5.5\text{ kN}}$$

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



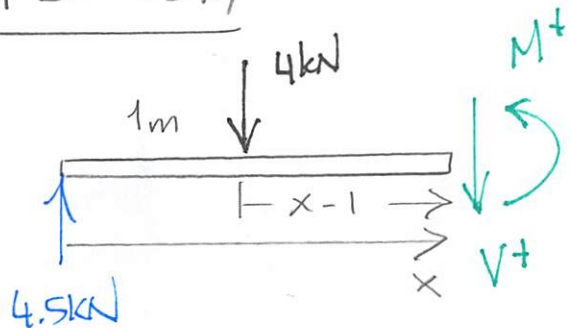
$$\sum \overset{\curvearrowleft}{M}_{\text{cut}} = 0 = M - 4.5\text{ kN}(x)$$

$$\underline{\underline{M = [4.5x]\text{ kNm}}}$$

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

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

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



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

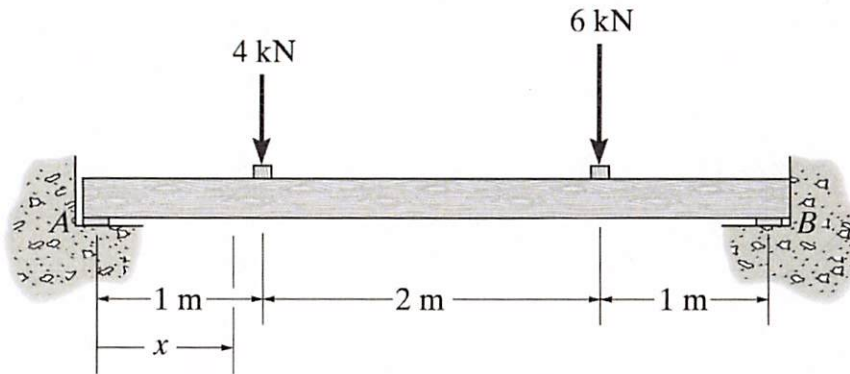
$$\underline{\underline{M = [-4(x-1) + 4.5x]\text{ kNm}}}$$

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

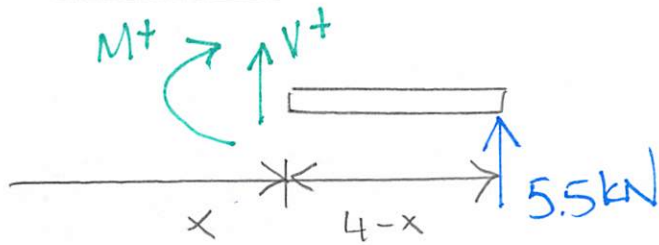
$$\underline{\underline{\Delta V = -4\text{ kN}}}$$

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

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



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



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

$$M = [5.5(4 - x)] \text{ kNm}$$

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

$$V = -5.5 \text{ kN}$$