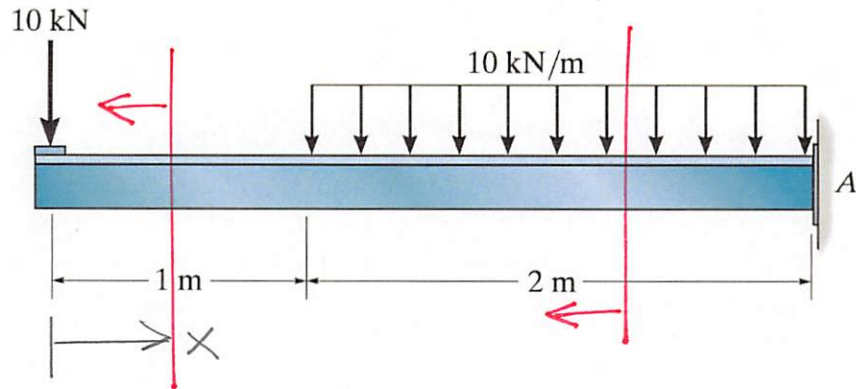
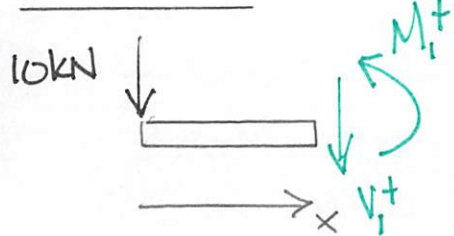


Example 4b-3 - Determine the internal shear and bending moment as a function of x .



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



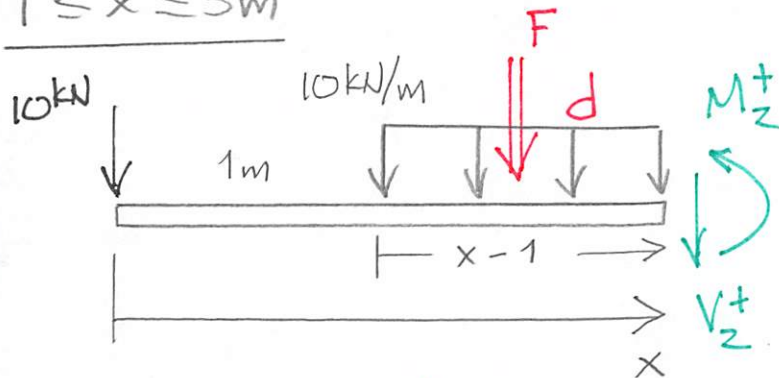
$$\sum \circlearrowleft M_{\text{cut}} = 0 = M + 10\text{kN}(x)$$

$$+\uparrow \sum F_y = 0 = -V - 10\text{kN}$$

$$\underline{M_1 = [-10x] \text{ kNm}} \quad M(x=0) = 0 \quad \checkmark$$

$$\underline{V_1 = -10\text{kN}} \quad \frac{dM}{dx} = V \quad \checkmark$$

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



$$F = 10(x-1) \text{ kN}$$

$$d = \frac{1}{2}(x-1) \text{ m}$$

$$\sum \circlearrowleft M_{\text{cut}} = 0 = M + 5(x-1)^2 + 10x$$

$$\underline{M_2 = [-5(x-1)^2 - 10x] \text{ kNm}}$$

$$M_1(x=1) = M_2(x=1) \quad \checkmark$$

$$+\uparrow \sum F_y = 0 = -V_2 - 10(x-1) - 10$$

$$\underline{V_2 = [-10(x-1) - 10] \text{ kN}}$$

$$V_1(x=1) = V_2(x=1) \quad \checkmark$$

$$\frac{dM}{dx} = V \quad \checkmark$$