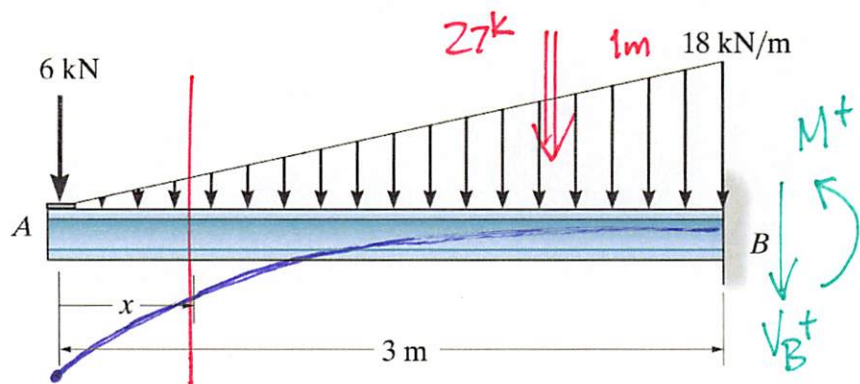
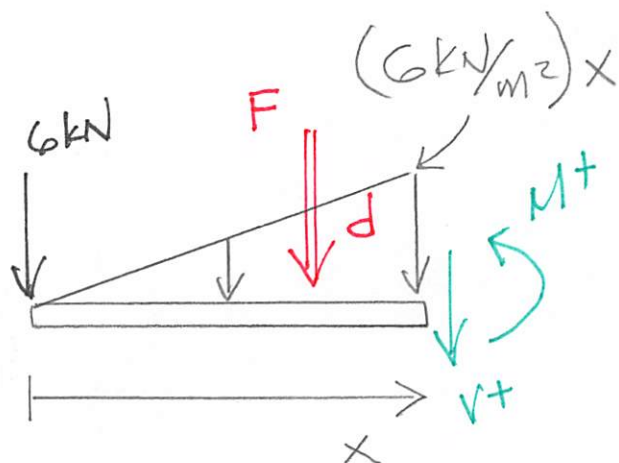
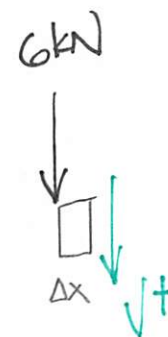


Example 4b-1 - Determine the internal shear and bending moment as a function of x .



$$\text{SLOPE} = \frac{18 \text{ kN/m}}{3 \text{ m}} = 6 \text{ kN/m}^2$$

$$0 \leq x \leq 3$$



$$\begin{aligned} \sum M_{\text{cut}} = 0 &= M + Fd + 6 \text{ kN}(x) \\ &= \left[M + 3x^2 \left(\frac{x}{3} \right) + 6x \right] \text{ kNm} \end{aligned}$$

$$\underline{\underline{M = [-x^3 - 6x] \text{ kNm}}}$$

$$\sum F_y = 0 = -V - F - 6 \text{ kN}$$

$$\underline{\underline{V = [-3x^2 - 6] \text{ kN}}}$$

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

$$F = \frac{1}{2}(x) 6x = 3x^2$$

$$d = \frac{x}{3}$$

$$M(x=0) = 0 \quad V(x=0) = -6 \text{ kN}$$