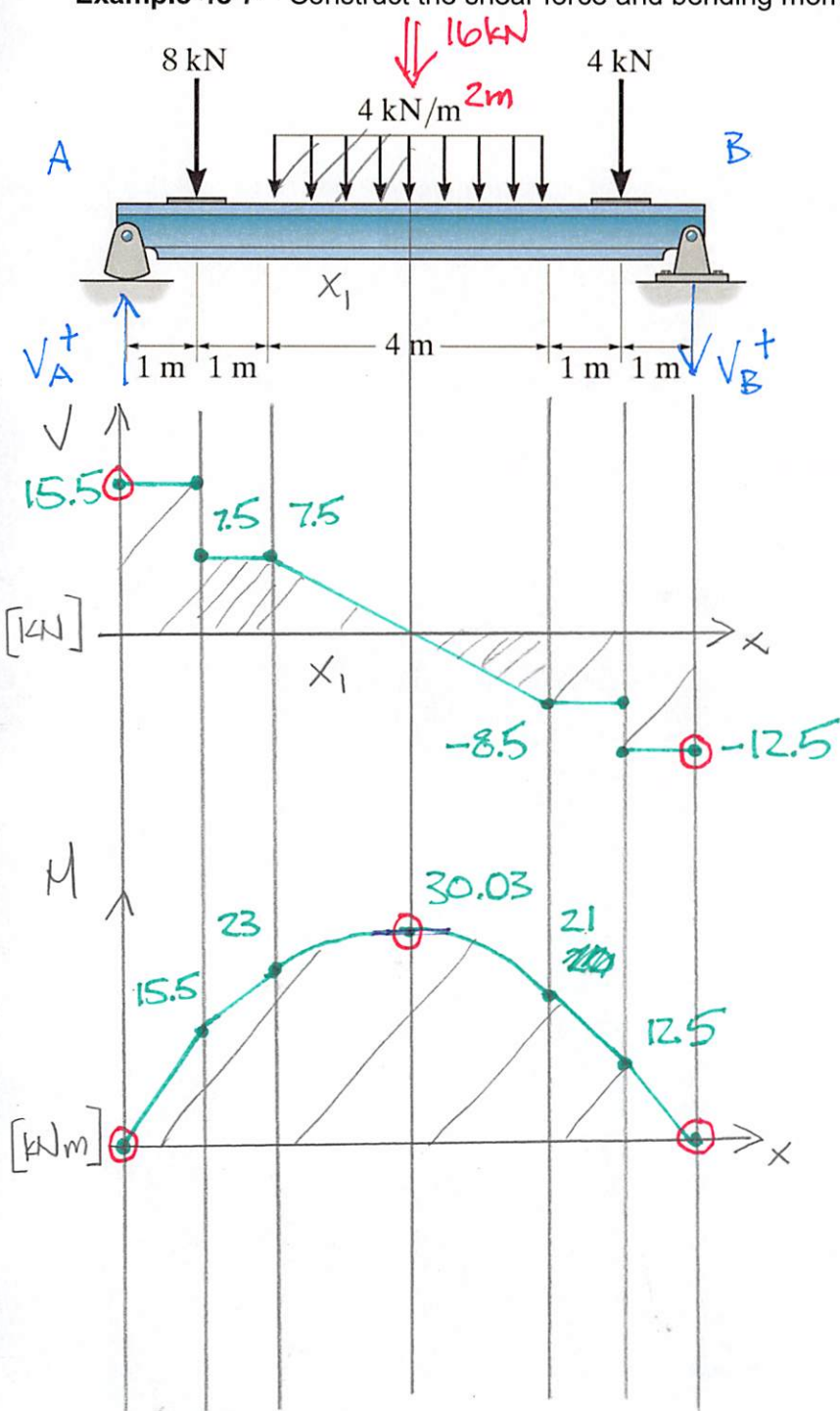


Example 4c-7 – Construct the shear force and bending moment diagrams.



$$\sum M_B = 0 = 4 \text{ kN}(1 \text{ m}) + 16 \text{ kN}(4 \text{ m}) + 8 \text{ kN}(7 \text{ m}) - V_A(8 \text{ m})$$

$$V_A = 15.5 \text{ kN}$$

$$\sum F_y = 0 = V_A - V_B - 4 \text{ kN} - 16 \text{ kN} - 8 \text{ kN}$$

$$V_B = -12.5 \text{ kN}$$

$$\Delta V = \int w dx \quad \frac{dV}{dx} = w \quad \Delta V = P$$

$$\downarrow \quad \downarrow$$

$$-7.5 \text{ kN} = -4x_1 \quad x_1 = \frac{-7.5 \text{ kN}}{-4 \text{ kN/m}} = 1.875 \text{ m}$$

$$\Delta M = \int V dx \quad \frac{dM}{dx} = V$$

$$M_{\text{MAX}} = 30.03 \text{ kNm} \quad x = 3.875 \text{ m}$$