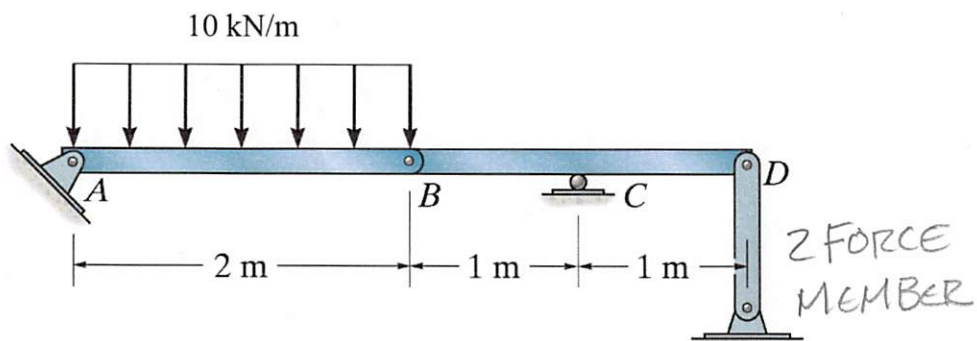
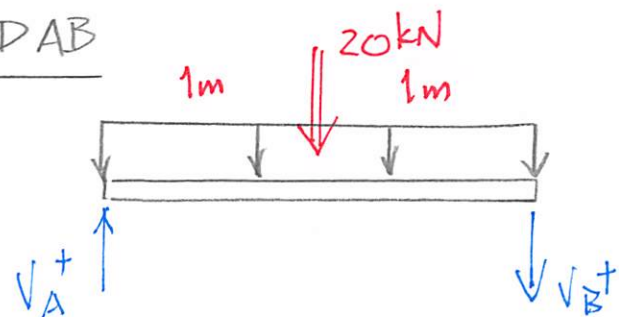


Example 4c-9 – Construct the shear force and bending moment diagrams.



FBD AB



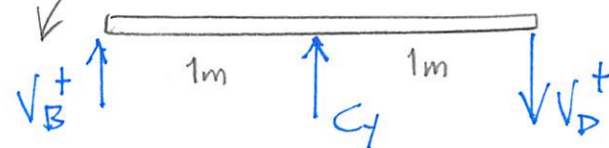
$$\sum M_B = 0 = 20 \text{ kN}(1 \text{ m}) - V_A(2 \text{ m})$$

$$\underline{V_A = 10 \text{ kN}}$$

$$+\uparrow \sum F_y = 0 = V_A - V_B - 20 \text{ kN}$$

$$\underline{V_B = -10 \text{ kN}}$$

FBD BCD

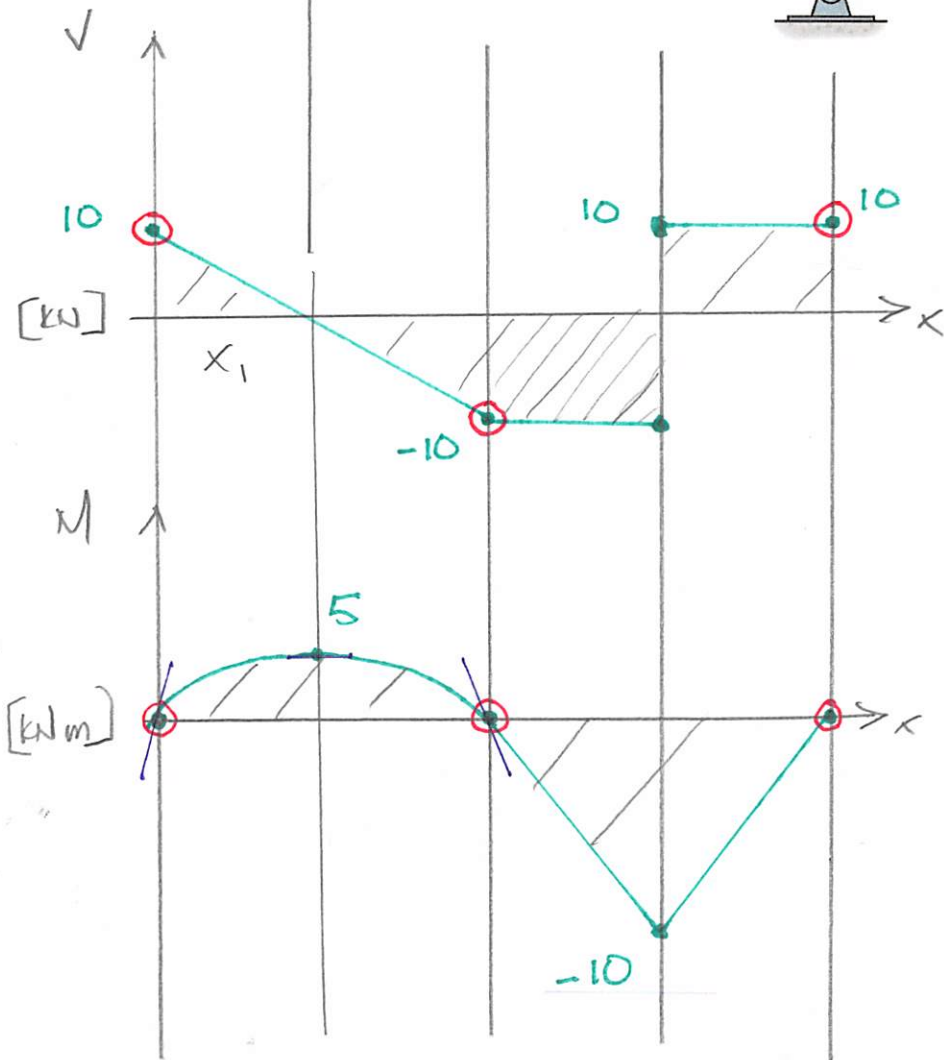
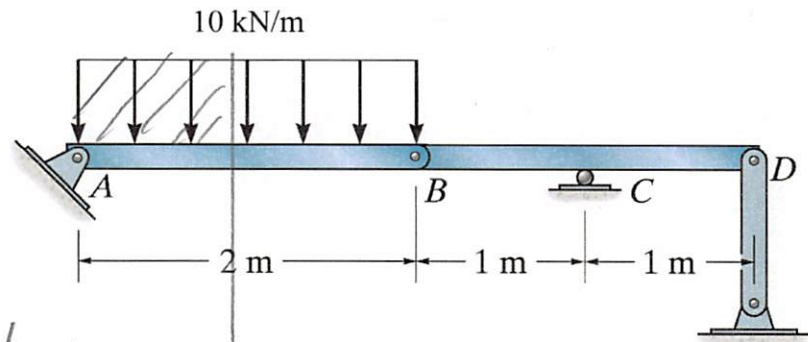


$$\sum M_D = 0 = -C_y(1 \text{ m}) - V_B(2 \text{ m})$$

$$C_y = \frac{-V_B(2 \text{ m})}{1 \text{ m}} = \underline{20 \text{ kN}}$$

$$+\uparrow \sum F_y = 0 = V_B + C_y - V_D \quad \underline{V_D = 10 \text{ kN}}$$

Example 4c-9 – Construct the shear force and bending moment diagrams.



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

$$\downarrow \quad \downarrow$$

$$-10 \text{ kN} = -10 \text{ kN/m}(x_1) \quad x_1 = 1 \text{ m}$$

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

$$\underline{\underline{M_{MAX} = -10 \text{ kNm @ C}}}$$