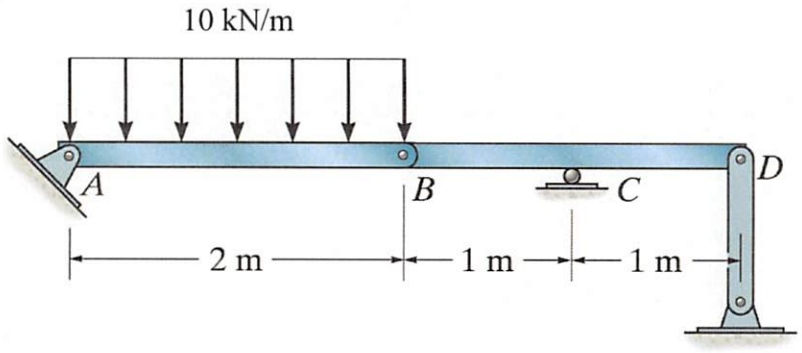
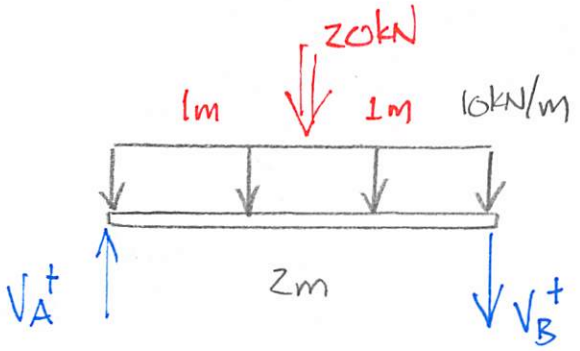
Example 4c-9 – Construct the shear force and bending moment diagrams.



FBD AB



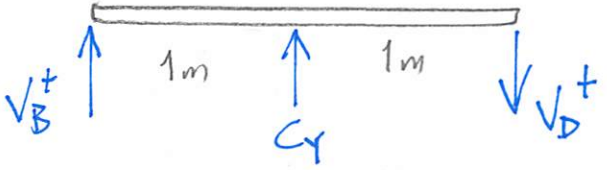
$$\circlearrowleft^+ \Sigma M_B = 0 = 20kN(1m) - V_A(2m)$$

$$V_A = 10kN$$

$$+\uparrow \Sigma F_y = 0 = V_A - V_B - 20kN$$

$$V_B = -10kN$$

FBD BD



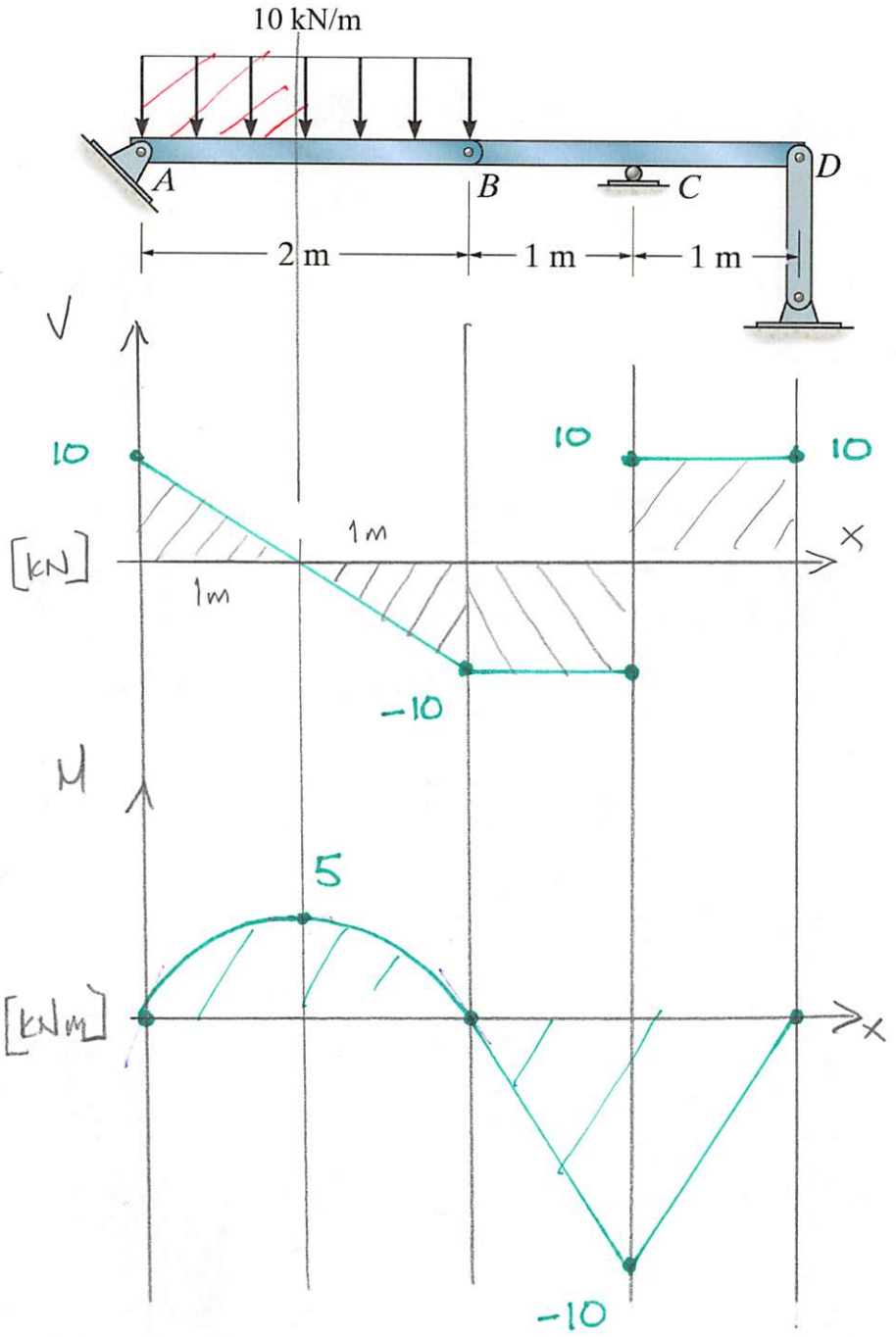
$$\circlearrowleft^+ \Sigma M_D = 0 = -V_B(2m) - C_y(1m)$$

$$C_y = -V_B(2m) = 20kN$$

$$+\uparrow \Sigma F_y = 0 = V_B + C_y - V_D$$

$$V_D = V_B + C_y = 10kN$$

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



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

$$\Delta V = -10\,kN \qquad \int w\,dx = -10x_1$$

$$x_1 = \frac{10\,kN}{10\,kN/m} = 1m$$

$$\Delta M = \int V\,d \qquad \frac{dM}{dx} = V$$

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