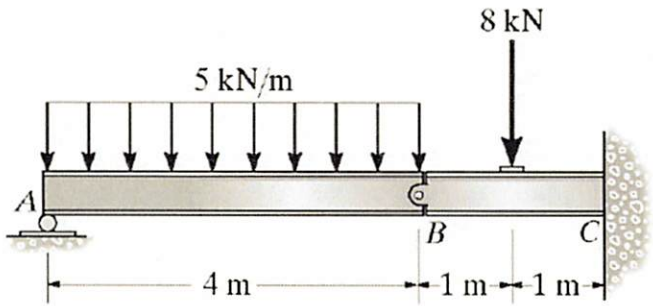
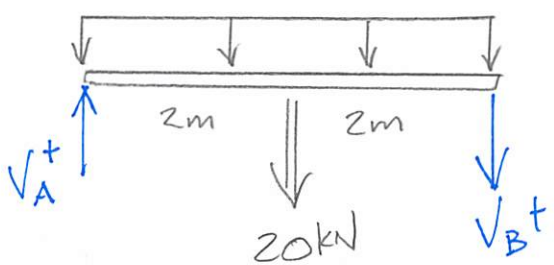
Example 4c-10 – Construct the shear force and bending moment diagrams.



FBD SECTION AB



$$\circlearrowleft^+ \Sigma M_B = 0$$

$$= 20kN(2m) - V_A(4m)$$

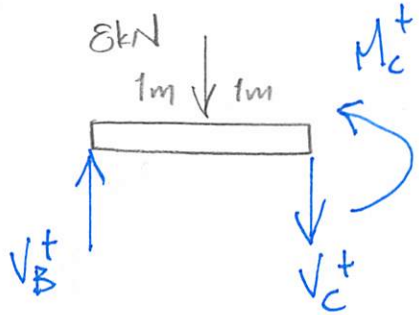
$$V_A = 10kN$$

$$+\uparrow \Sigma F_y = 0$$

$$= V_A - V_B - 20kN$$

$$V_B = -10kN$$

FBD SECTION BC



$$\circlearrowleft^+ \Sigma M_C = 0$$

$$= M_C + 8kN(1m) - V_B(2m)$$

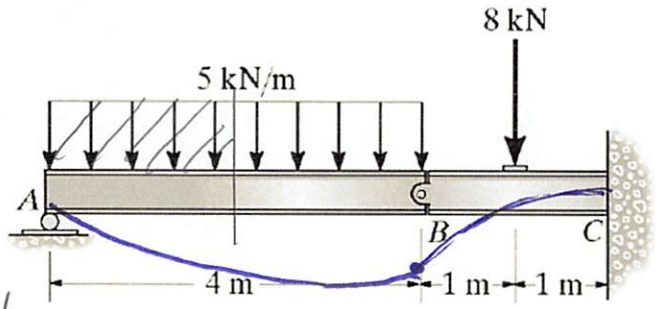
$$M_C = -28kNm$$

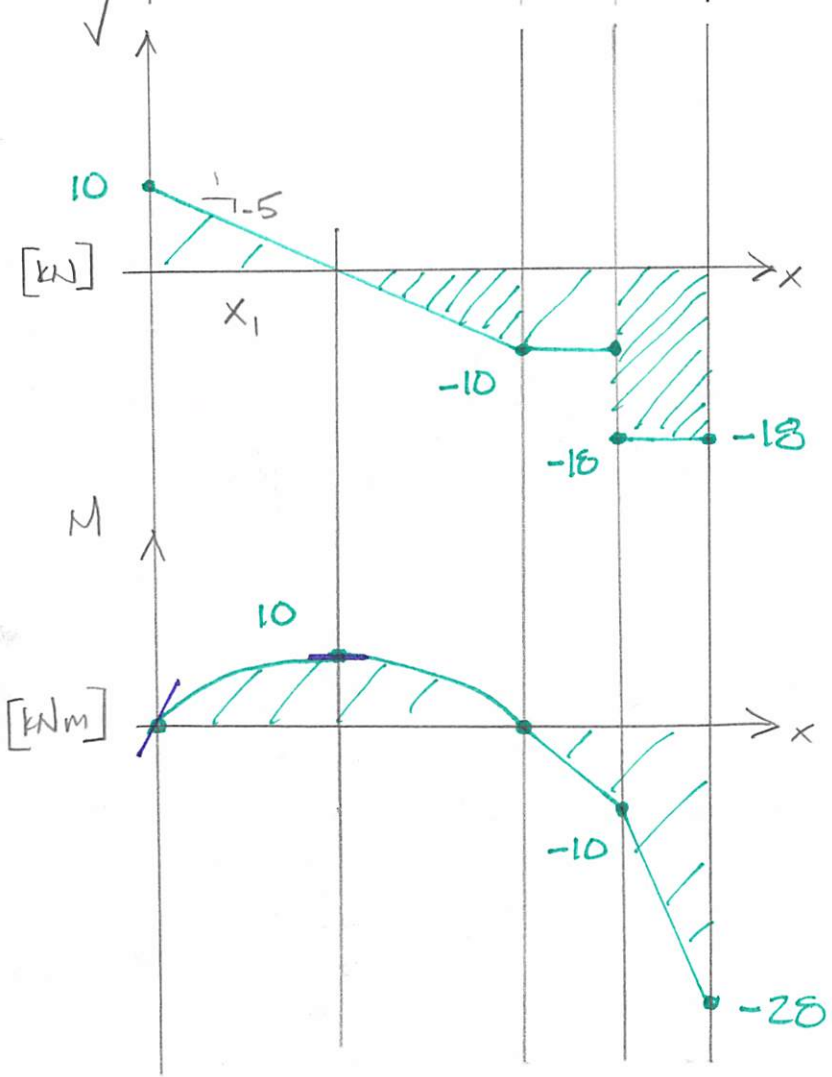
$$+\uparrow \Sigma F_y = 0$$

$$= V_B - V_C - 8kN$$

$$V_C = -18kN$$

Example 4c-10 – Construct the shear force and bending moment diagrams.





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

$$\Delta V = -10\,kN \qquad \int w\,dx = -5x_1\,kN$$

$$x_1 = \frac{10\,kN}{5\,kN/m} = 2m$$

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

$$\underline{M_{MAX} = -28\,kNm\ @\ C}$$