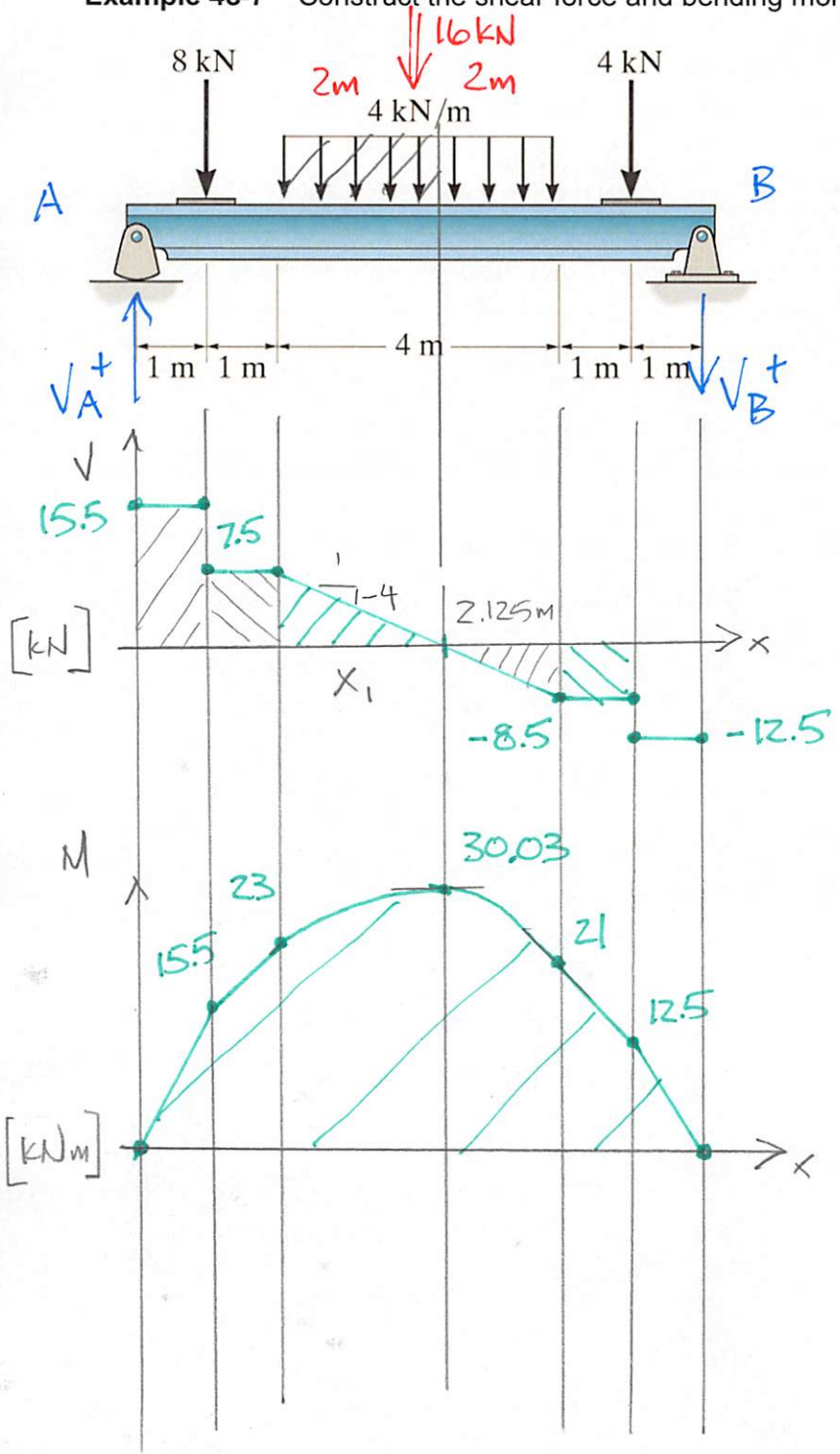
Example 4c-7 – Construct the shear force and bending moment diagrams.



$$\circlearrowleft + \sum M_B = 0 = 4\,kN(1m) + 16kN(4m) + 8kN(7m) - V_A(8m)$$

$$\underline{V_A = 15.5\,kN}$$

$$+\uparrow \sum F_y = 0 = V_A - V_B - 4kN - 16kN - 8kN$$

$$\underline{V_B = -12.5\,kN}$$

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

$$\Delta V = -7.5\,kN \qquad x_1 = \frac{7.5\,kN}{4\,kN/m} = 1.875\,m$$

$$\int w\,dx = -4x_1$$

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

$$\underline{M_{MAX} = 30.03\,kNm \;@\; x = 3.875\,m}$$