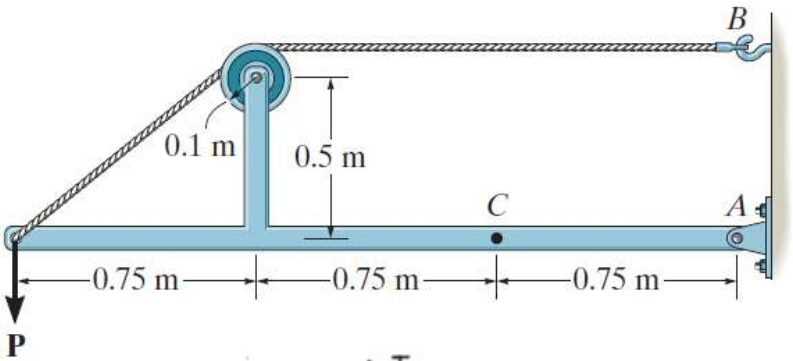
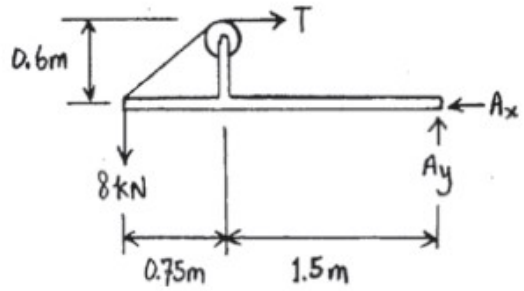
Determine the normal force, shear force, and moment at a section passing through point C. Take $P = 8$ kN.



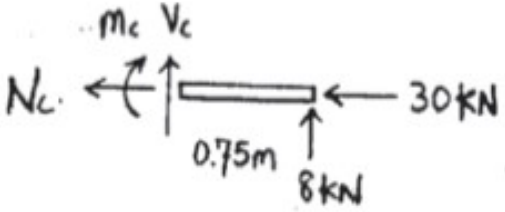


$\zeta + \Sigma M_A = 0;$ $\quad -T(0.6) + 8(2.25) = 0$

$T = 30$ kN

$\pm\rightarrow \Sigma F_x = 0;$ $\quad A_x = 30$ kN

$+\uparrow \Sigma F_y = 0;$ $\quad A_y = 8$ kN



$\pm\rightarrow \Sigma F_x = 0;$ $\quad -N_C - 30 = 0$

$N_C = -30$ kN

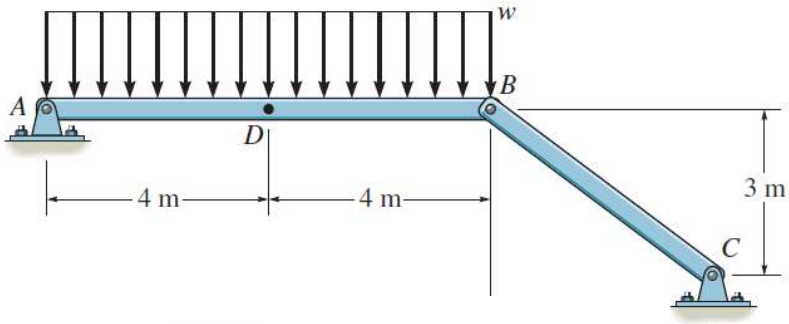
$+\uparrow \Sigma F_y = 0;$ $\quad V_C + 8 = 0$

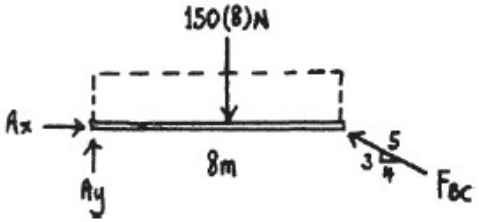
$V_C = -8$ kN

$\zeta + \Sigma M_C = 0;$ $\quad -M_C + 8(0.75) = 0$

$M_C = 6$ kN · m

Determine the normal force, shear force, and moment at a section passing through point D. Take $w = 150$ N/m.





$$\circlearrowleft + \Sigma M_A = 0; \qquad -150(8)(4) + \frac{3}{5}F_{BC}(8) = 0$$

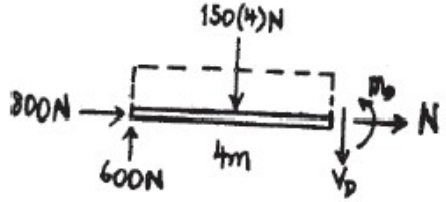
$$F_{BC} = 1000\ \text{N}$$

$$\pm\!\rightarrow \Sigma F_x = 0; \qquad A_x - \frac{4}{5}(1000) = 0$$

$$A_x = 800\ \text{N}$$

$$+\uparrow \Sigma F_y = 0; \qquad A_y - 150(8) + \frac{3}{5}(1000) = 0$$

$$A_y = 600\ \text{N}$$



$$\pm\!\rightarrow \Sigma F_x = 0; \qquad N_D = -800\ \text{N}$$

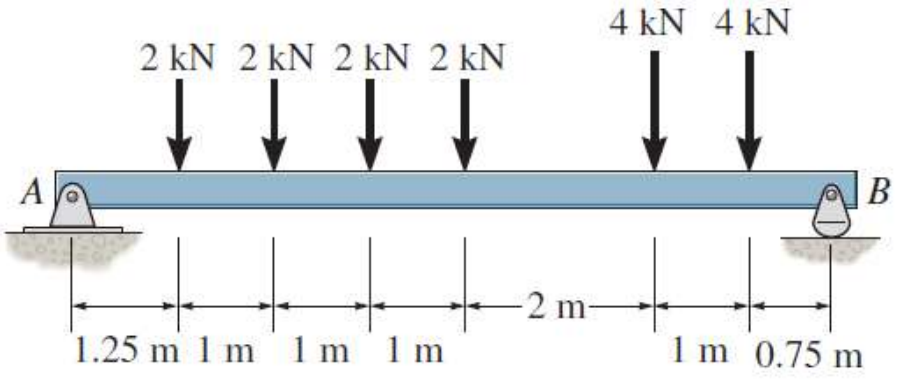
$$+\uparrow \Sigma F_y = 0; \qquad 600 - 150(4) - V_D = 0$$

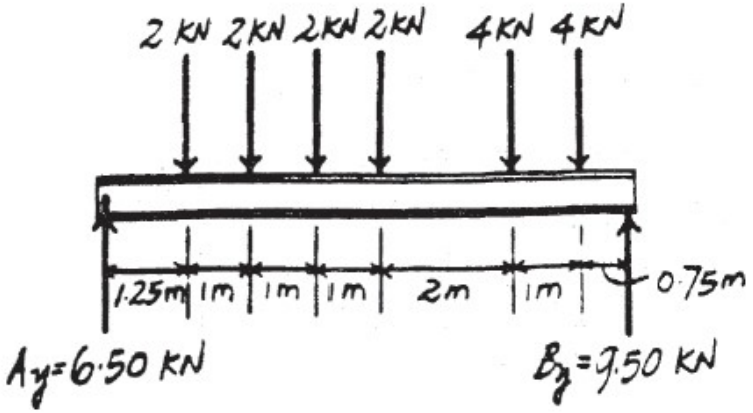
$$V_D = 0$$

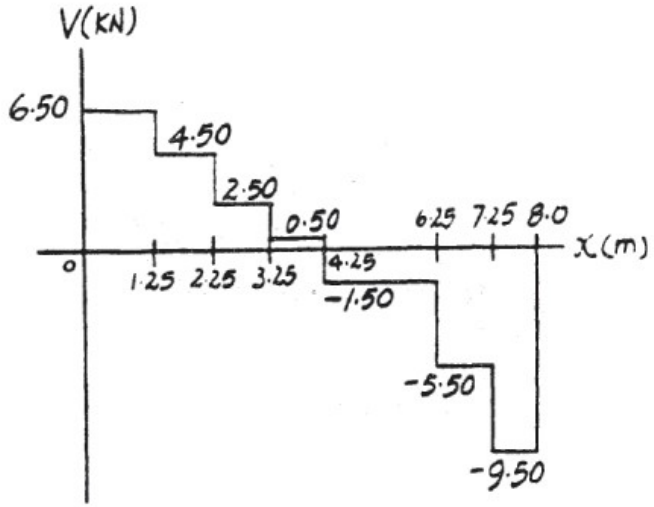
$$\circlearrowleft + \Sigma M_D = 0; \qquad -600(4) + 150(4)(2) + M_D = 0$$

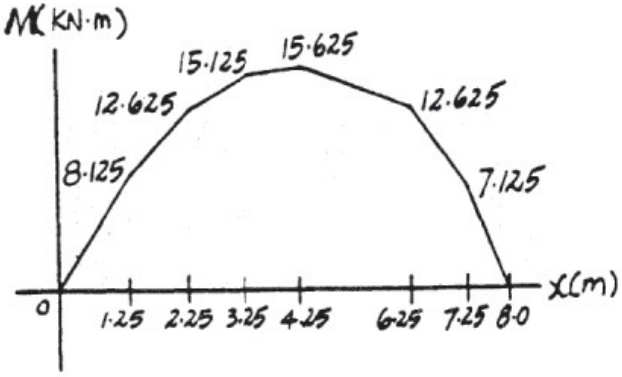
$$M_D = 1200\ \text{N}\cdot\text{m} = 1.20\ \text{kN}\cdot\text{m}$$

Draw the shear and moment diagrams for the beam.

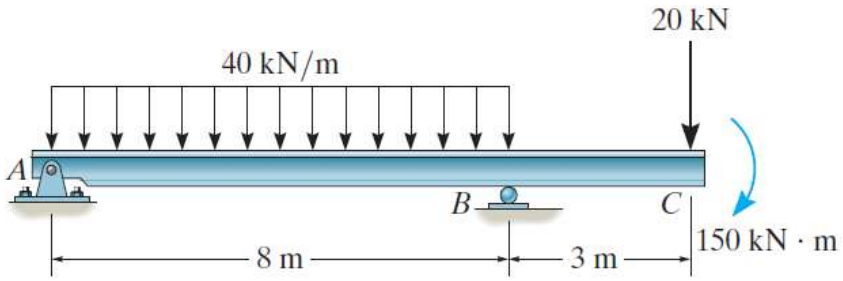


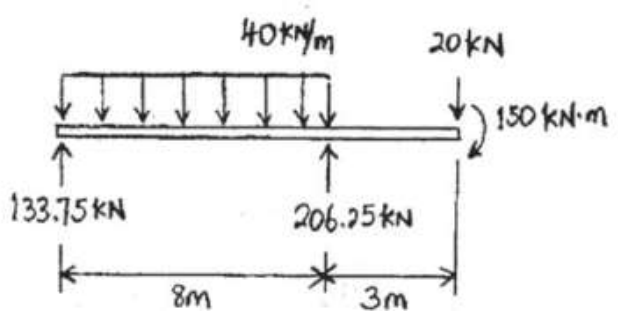


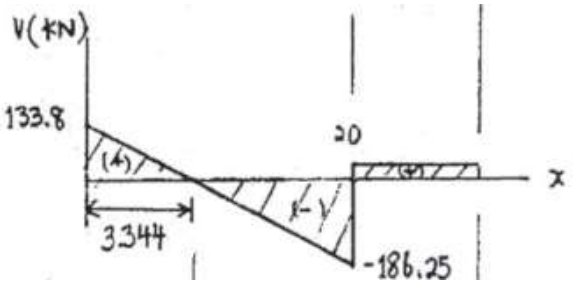


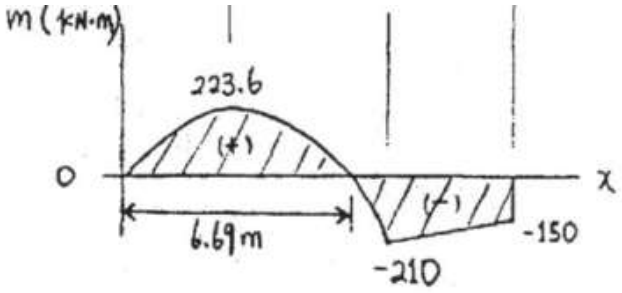


Draw the shear and moment diagrams for the beam.

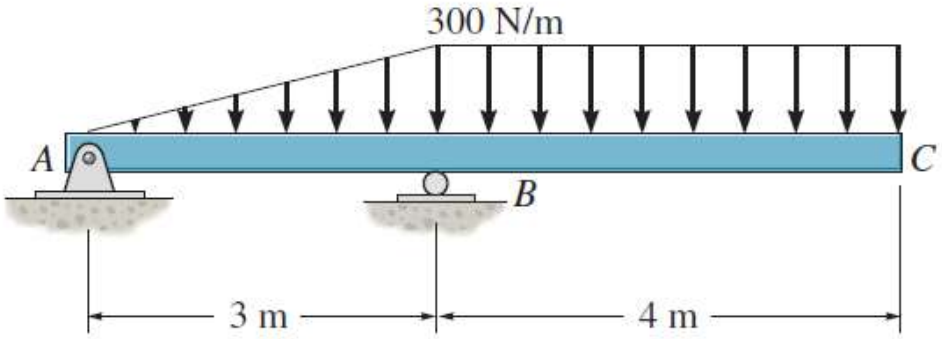


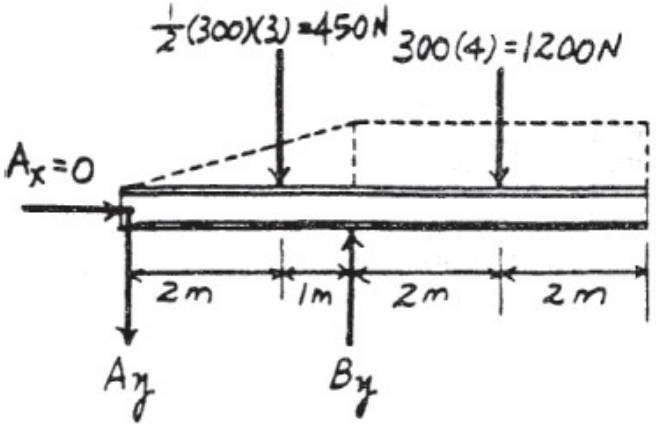


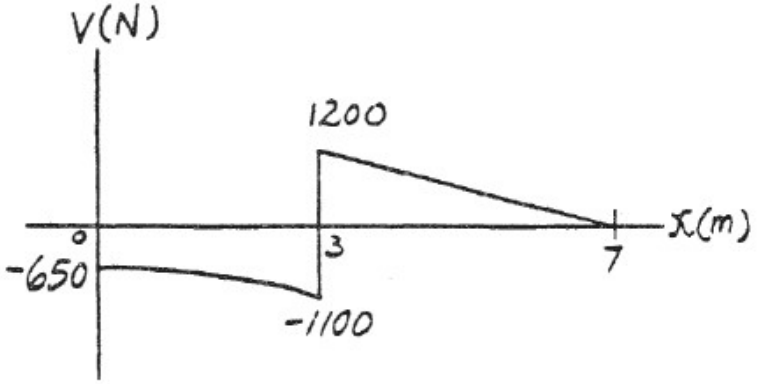


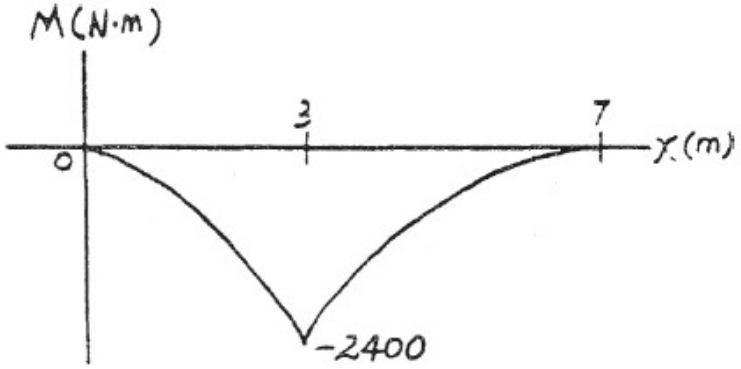


Draw the shear and bending-moment diagrams for the beam.









Draw the shear and moment diagrams for the beam.