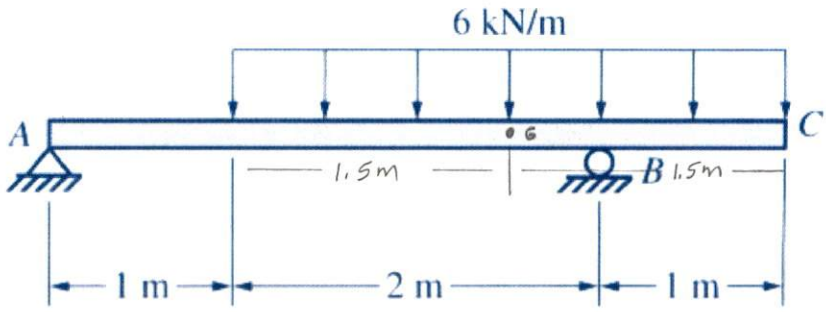
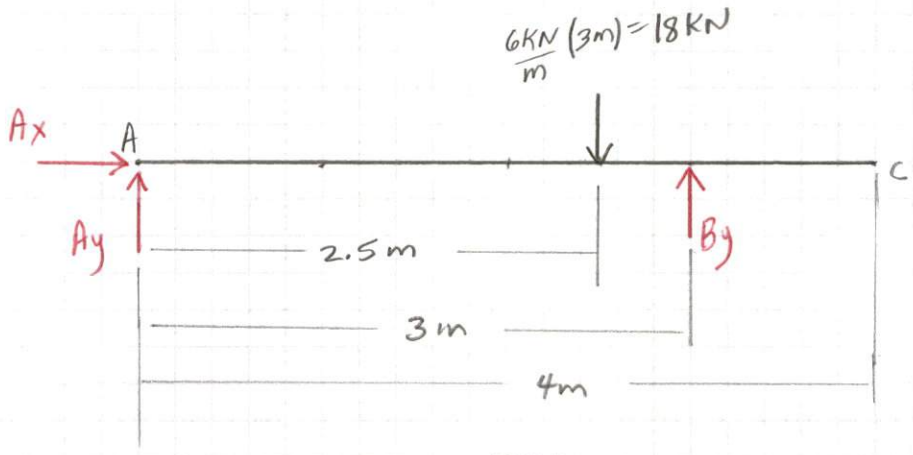
3-44

See Fig. P3-44. Determine the reaction components at the supports of the beam subjected to a uniform load as shown.

Solution.





FBD

ccw +M ↺
cw −M ↻

Equilibrium Equations

$[\Sigma F_x = 0] \quad A_x = 0$

$[\Sigma M_A = 0] \quad -18\,kN(2.5m) + B_y(3m) = 0$

$B_y = \frac{45\,kN \cdot m}{3m} = \underline{\underline{15\,kN}} \uparrow$

$[\Sigma F_y = 0] \quad A_y - 18\,kN + B_y = 0$

$A_y = 18\,kN - 15\,kN = \underline{\underline{3\,kN}} \uparrow$