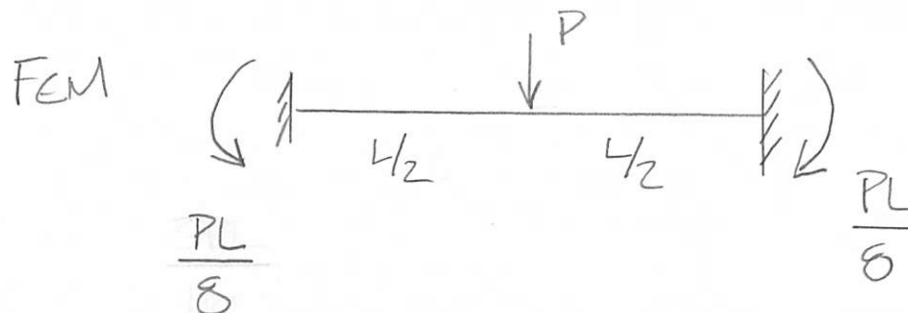
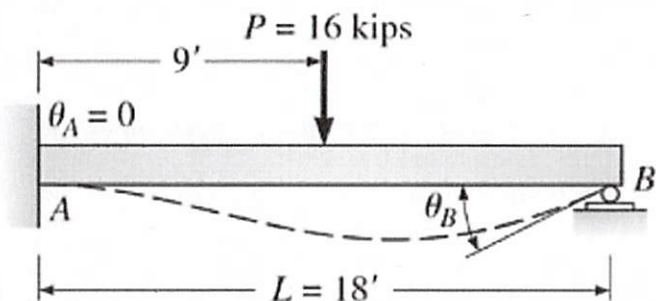


Problem 10a-1 – Determine the moment at A. Assume the support at A is fixed and B is a roller. EI is constant.



$$M_{AB} = \frac{2EI}{L} \left[2\theta_A + \theta_B - 3\psi \right] - \frac{16k(18ft)}{8} \quad (1)$$

$$M_{BA} = \frac{2EI}{L} \left[2\theta_B + \theta_A - 3\psi \right] + \frac{16k(18ft)}{8} \quad (2) \quad \underline{M_{BA} = 0}$$

$$M_{BA} = 0 = \frac{2EI}{18'} \left[2\theta_B \right] + 36kft \Rightarrow \frac{4EI}{18'} \theta_B = -36kft$$

$$\underline{\underline{\theta_B = -\frac{162kft^2}{EI}}} \quad [EI] \quad FL^2$$

$$M_{AB} = \frac{2EI}{18'} \left[\theta_B \right] - 36kft = \frac{EI}{9'} \left[-\frac{162kft^2}{EI} \right] - 36kft = \underline{\underline{-54kft}}$$