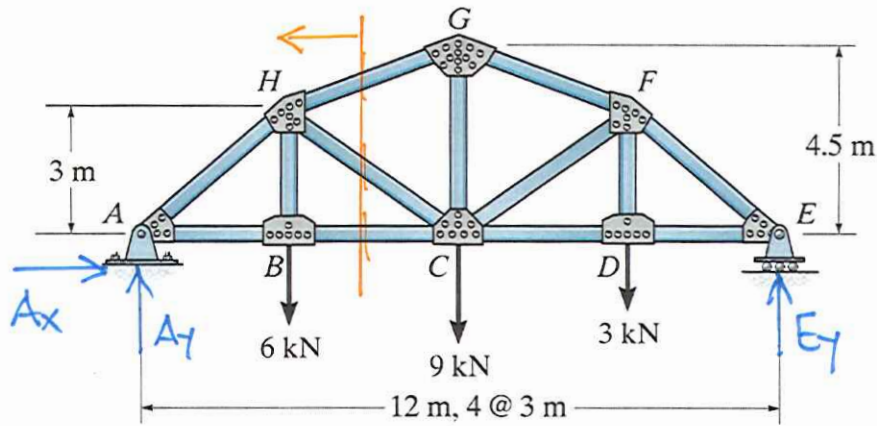


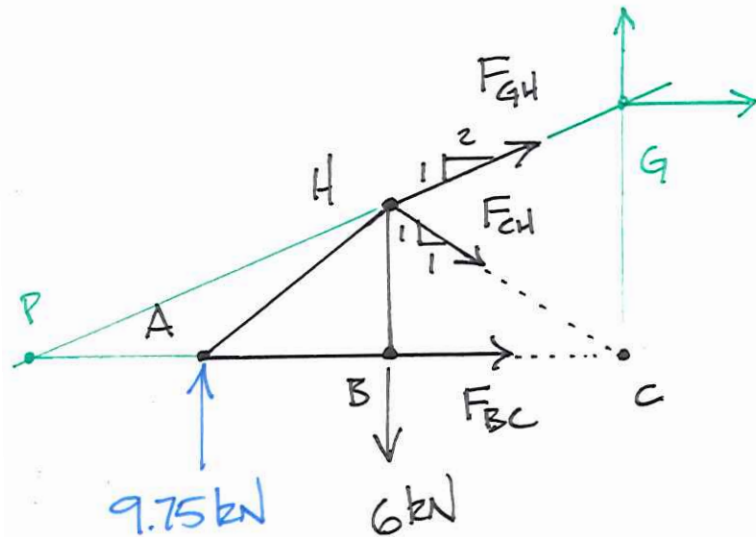
Problem 3-31: Determine the forces in members GH, HC, and BC.



$$\begin{aligned} \sum M_E = 0 &= 3\text{ kN}(3\text{ m}) + 9\text{ kN}(6\text{ m}) + 6\text{ kN}(9\text{ m}) \\ &\quad - A_y(12\text{ m}) \end{aligned}$$

$$\underline{A_y = 9.75\text{ kN}}$$

$$\sum F_x = 0 = A_x$$



$$\begin{aligned} \sum M_H = 0 &= F_{BC}(3\text{ m}) - 9.75\text{ kN}(3\text{ m}) \end{aligned}$$

$$\underline{F_{BC} = 9.75\text{ kN}}$$

$$\begin{aligned} \sum M_C = 0 &= -\frac{2}{\sqrt{5}} F_{GH}(4.5\text{ m}) + 6\text{ kN}(3\text{ m}) - 9.75\text{ kN}(6\text{ m}) \end{aligned}$$

$$\underline{F_{GH} = -10\text{ kN}}$$

$$\begin{aligned} \sum F_y = 0 &= -\frac{1}{\sqrt{2}} F_{CH} + \frac{1}{\sqrt{5}} F_{GH} - 6\text{ kN} + 9.75\text{ kN} \end{aligned}$$

$$\underline{F_{CH} = -1\text{ kN}}$$