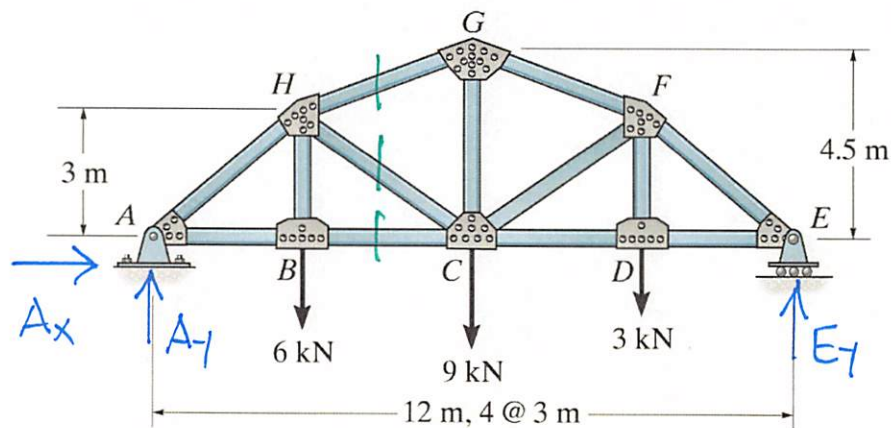


Problem 3c-4: Determine the forces in members GH, HC, and BC.

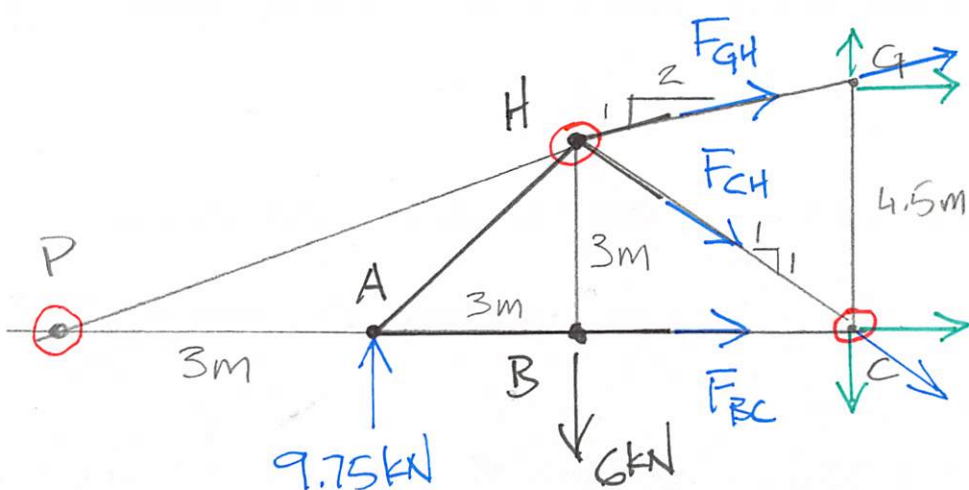


$$\begin{aligned} \sum M_E = 0 &= 3 \text{ kN}(3 \text{ m}) + 9 \text{ kN}(6 \text{ m}) + 6 \text{ kN}(9 \text{ m}) \\ &\quad - A_y(12 \text{ m}) \end{aligned} \quad \underline{A_y = 9.75 \text{ kN}}$$

$$\sum F_x = 0 = A_x$$

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

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



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

$$\underline{F_{GH} = -10.06 \text{ kN}}$$

$$\sum M_P = 0 = -\frac{1}{\sqrt{2}} F_{CH}(9 \text{ m}) + 9.75 \text{ kN}(3 \text{ m}) - 6 \text{ kN}(6 \text{ m})$$

$$\underline{F_{CH} = -1.06 \text{ kN}}$$

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

$$\underline{F_{CH} = -1.02 \text{ kN}}$$