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From an overall free-body diagram, the equations of equilibrium

$$\rightarrow \Sigma F_x = 0: \quad A_x = 0$$

$$\uparrow \Sigma F_y = 0: \quad A_y - 10 - 20 + N_E = 0$$

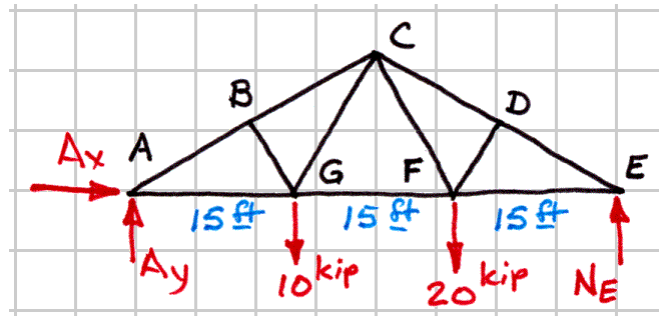
$$\circlearrowleft \Sigma M_A = 0: \quad 45N_E - 15(10) - 30(20) = 0$$

are solved to get

$$A_x = 0 \text{ kip}$$

$$A_y = 13.3333 \text{ kip } \uparrow$$

$$N_E = 16.6667 \text{ kip } \uparrow$$



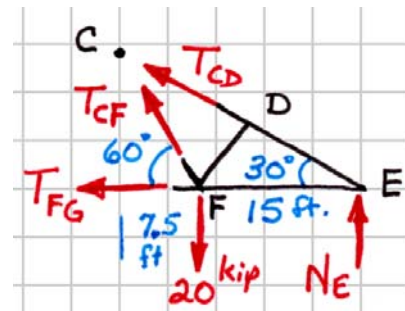
Then, from a free-body diagram of the right hand section of the truss, the equations of equilibrium

$$\circlearrowleft \Sigma M_F = 0: \quad 15N_E + 15(T_{DE} \sin 30^\circ) = 0$$

$$\circlearrowleft \Sigma M_E = 0: \quad 15(20) - 15(T_{CF} \sin 60^\circ) = 0$$

$$\circlearrowleft \Sigma M_C = 0: \quad 22.5N_E - 7.5(20) - (15 \cos 30^\circ)T_{FG} = 0$$

are solved to get



$$T_{CD} = -33.3333 \text{ kip} \cong 33.3 \text{ kip (C)} \quad \text{Ans.}$$

$$T_{CF} = +23.094 \text{ kip} \cong 23.1 \text{ kip (T)} \quad \text{Ans.}$$

$$T_{FG} = +17.32 \text{ kip} = 17.32 \text{ kip (T)} \quad \text{Ans.}$$