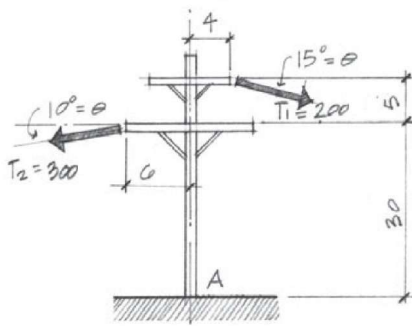
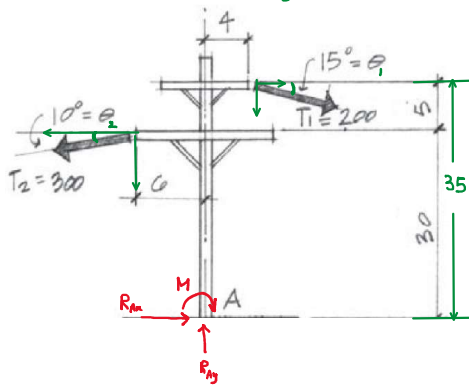


Trusses Question Solutions

3. Determine the resisting moment at the base of the utility pole assuming forces $T_1=200$ and $T_2=300$ are as shown. What are the horizontal reactions R_{Ax} and R_{Ay} at the base?



Solution: Let M be the Resisting Moment at the base of Pole.



$$\sum M_A = 0:$$

$$M + (T_1 \cos \theta_1 \times 35) + (T_1 \sin \theta_1 \times 4) - (T_2 \cos \theta_2 \times 30) - (T_2 \sin \theta_2 \times 6) = 0$$

$$\text{Put } T_1 = 200, \theta_1 = 15^\circ; T_2 = 300, \theta_2 = 10^\circ$$

$$\Rightarrow M = 2207.3$$

$$\sum F_y = 0:$$

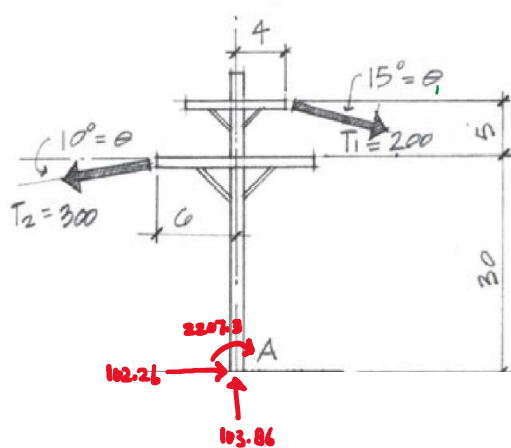
$$R_{Ay} - T_2 \sin \theta_2 - T_1 \sin \theta_1 = 0 \Rightarrow R_{Ay} - 300 \sin 10^\circ - 200 \sin 15^\circ = 0$$

$$\Rightarrow R_{Ay} = 103.86$$

$$\sum F_x = 0:$$

$$R_{Ax} - T_2 \cos \theta_2 + T_1 \cos \theta_1 = 0 \Rightarrow R_{Ax} - 300 \cos 10^\circ + 200 \cos 15^\circ = 0$$

$$\Rightarrow R_{Ax} = 102.26$$



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