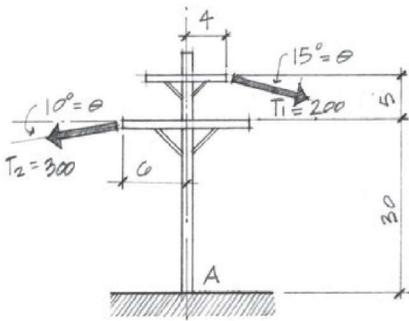
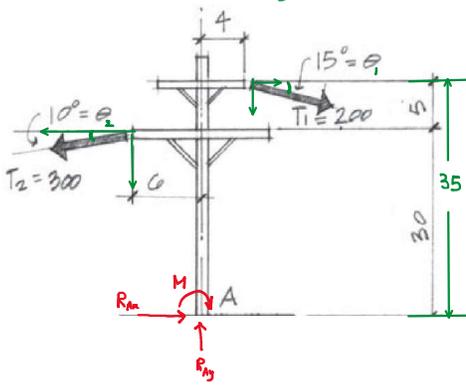


Trusses Question Solutions

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.



$$\sum M_A = 0:$$

$$M + (T_1 \cos \theta_1 \times 35) + (T_1 \sin \theta_1 \times 4) - (T_2 \cos \theta_2 \times 30) - (T_2 \sin \theta_2 \times 5) = 0$$

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

$$\Rightarrow M = 2207.3$$

$$\sum F_y = 0:$$

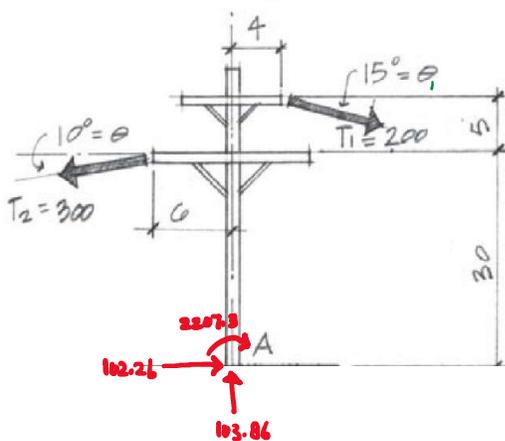
$$R_{Ay} - T_2 \sin \theta_2 - T_1 \sin \theta_1 = 0 \Rightarrow R_{Ay} - 300 \sin 10^\circ - 200 \sin 15^\circ = 0$$

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

$$\sum F_x = 0:$$

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

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



This problem was solved by Civil Thinking (<https://civilthinking.com>)

If you need solutions of **Strength of Materials/ Mechanics of Materials Questions** or any other **Civil Engineering** subjects, contact us at:

solutions@civilthinking.com

Or submit your problem directly here:

 <https://civilthinking.com/getproblemsolutions>

Other Subjects We Cover:

- Structural Analysis
- Fluid Mechanics
- Geotechnical Engineering
- Transportation Engineering
- Construction Management
- Finite Element Analysis (FEA), etc.
- Engineering Software (ANSYS, ETABS, MATLAB, Revit, SAP2000, AutoCAD, Staad Foundation Advanced, Staad.Pro, etc.)

Let us help you solve your engineering challenges! 

NOTE:

The solution provided in this document is the intellectual property of Civil Thinking (<https://civilthinking.com>) and is protected by copyright. Any reproduction, distribution, or publication of this content, in whole or in part, is strictly prohibited without prior written permission from <https://civilthinking.com>.