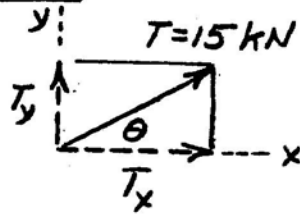


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$$\theta = \tan^{-1} \frac{6}{10} = 31.0^\circ$$

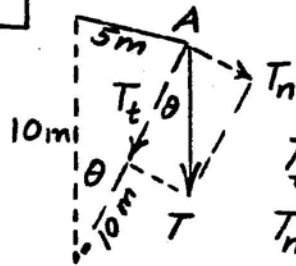
$$\sin \theta = 0.514, \quad \cos \theta = 0.857$$

$$T_x = T \cos \theta = 15(0.857) = 12.86 \text{ kN}$$

$$T_y = T \sin \theta = 15(0.514) = 7.72 \text{ kN}$$

$$\underline{\underline{T = 12.86 \underline{i} + 7.72 \underline{j} \text{ kN}}}$$

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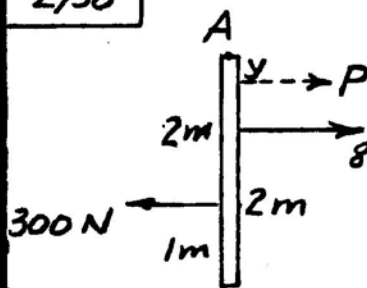
$$\theta = 2 \sin^{-1} \frac{5/2}{10} = 28.96^\circ$$

$$T = mg = 800(9.81) = 7848 \text{ N}$$

$$T_t = T \cos \theta = 7.848 \times 0.8750 = \underline{\underline{6.87 \text{ kN}}}$$

$$T_n = T \sin \theta = 7.848 \times 0.4841 = \underline{\underline{3.80 \text{ kN}}}$$

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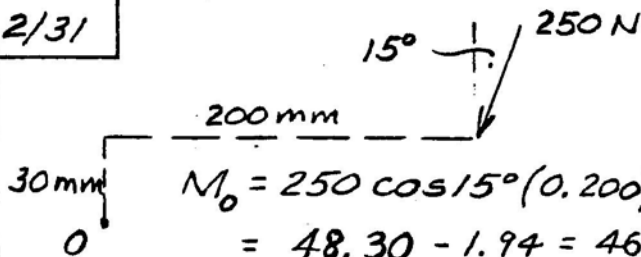


$$P = \Sigma F = 800 - 300 = 500 \text{ N}$$

$$P_y = M_A = 800(1) - 300(2)$$

$$y = \frac{200}{500} = \underline{\underline{0.4 \text{ m}}}$$

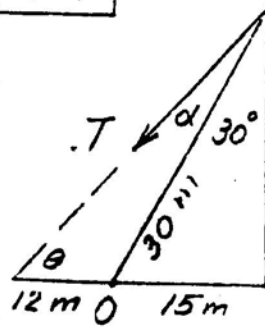
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$$M_o = 250 \cos 15^\circ (0.200) - 250 \sin 15^\circ (0.030)$$

$$= 48.30 - 1.94 = \underline{\underline{46.4 \text{ N}\cdot\text{m}}}$$

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$$\theta = \tan^{-1} \frac{30(0.866)}{12 + 15} = 43.90^\circ$$

$$\alpha = 90^\circ - (30^\circ + 43.90^\circ) = 16.10^\circ$$

$$M_o = 72 \text{ kN}\cdot\text{m}$$

$$= T \sin 16.10^\circ (30) = 8.32T$$

$$T = \frac{72}{8.32} = \underline{8.65 \text{ kN}}$$