นายภาณุพงศ์ พวงแก้ว
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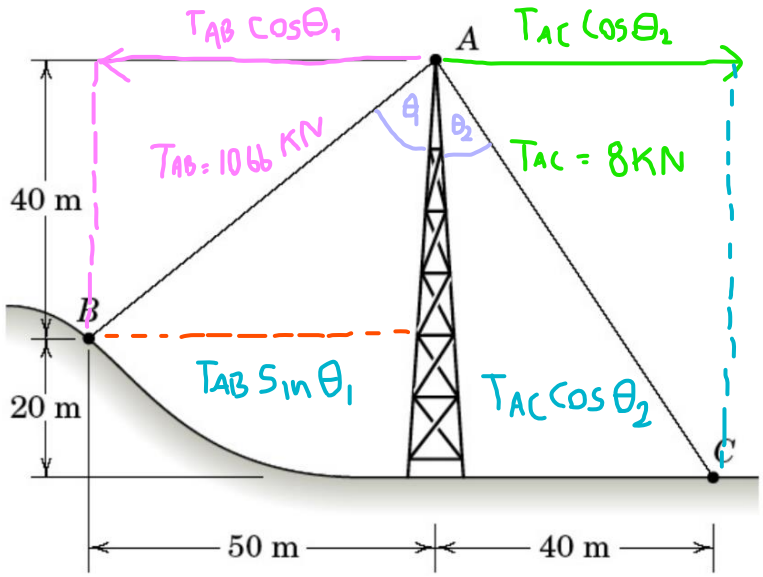
Ex. The tension in cable ***AC*** is 8 kN, determine the required tension ***T*** in cable ***AB*** such that the net effect of the two cable tensions is a downward force at point ***A***. And determine the magnitude ***R*** of this downward force too.



$\theta_1 = \tan^{-1}\left(\frac{5}{4}\right)$

$\theta_1 = 51.34°$

$\theta_2 = \tan^{-1}\left(\frac{2}{3}\right)$

$\theta_2 = 33.69°$

$\Sigma T_x = 0 \rightarrow T_{AB}\cos\theta_1 = T_{AC}\cos\theta_2$

ดังนั้น T_{AB}, $T_{AB}\cos(51.34°) = 8\ \text{KN}\cos(33.69°)$

$\therefore T_{AB} = 10.66$ KN

$\Sigma T_y = T_{AB}\sin\theta_1 + T_{AC}\sin\theta_2$

$= 10.66\ \text{KN}\sin(51.34°) + 8\text{KN}\sin(33.69°)$

$= 8.324\ \text{KN} + 4.43\ \text{KN}$

$= 12.75$ KN

$R = \Sigma T_y = 12.75$ KN #