DTY Tutoring, inc.
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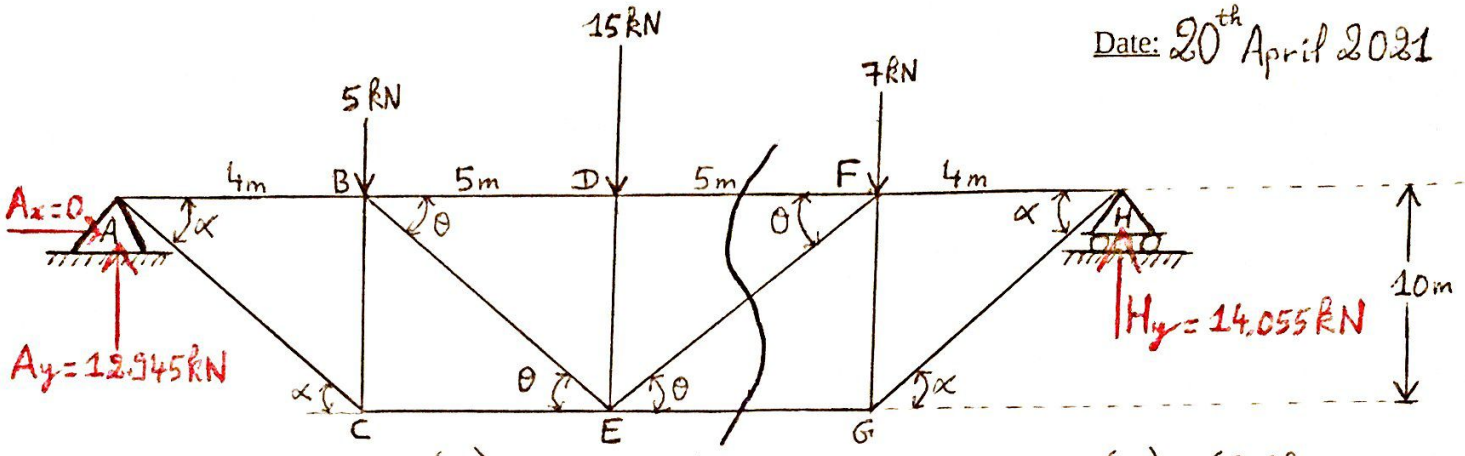
Date: 20th April 2021



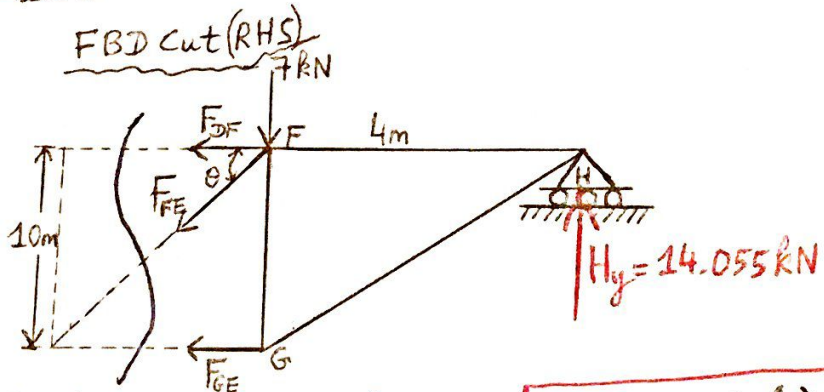

$\tan(\theta)=\frac{10m}{5m} \Rightarrow \theta=\tan^{-1}\left(\frac{10}{5}\right)=63.4°$ ; $\tan(\alpha)=\frac{10m}{4m} \Rightarrow \alpha=\tan^{-1}\left(\frac{10}{4}\right)=68.2°$

$+\circlearrowleft \sum M_A=0$ ; $(-5kN)(4m)+(-15kN)(9m)+(-7kN)(14m)+(H_y)(18m)=0 \Rightarrow H_y=14.055kN$

$+\uparrow \sum F_y=0$ ; $A_y+H_y-5-15-7=0 \Rightarrow A_y=27-H_y=12.945kN$

$\pm\rightarrow \sum F_x=0$ ; $A_x=0$

FBD cut (RHS)




$+\circlearrowleft \sum M_F=0$ ; $(-F_{GE})(10m)+(H_y)(4m)=0 \Rightarrow$ **$F_{GE}=5.62kN(T)$**

$+\uparrow \sum F_y=0$ ; $H_y-F_{FE}\sin(\theta)-7kN=0 \Rightarrow$ **$F_{FE}=7.89\,kN(T)$**

$\pm\rightarrow \sum F_x=0$ ; $-F_{DF}-F_{GE}-F_{FE}\cos(\theta)=0 \Rightarrow$ **$F_{DF}=-9.15kN=9.15kN(C)$**