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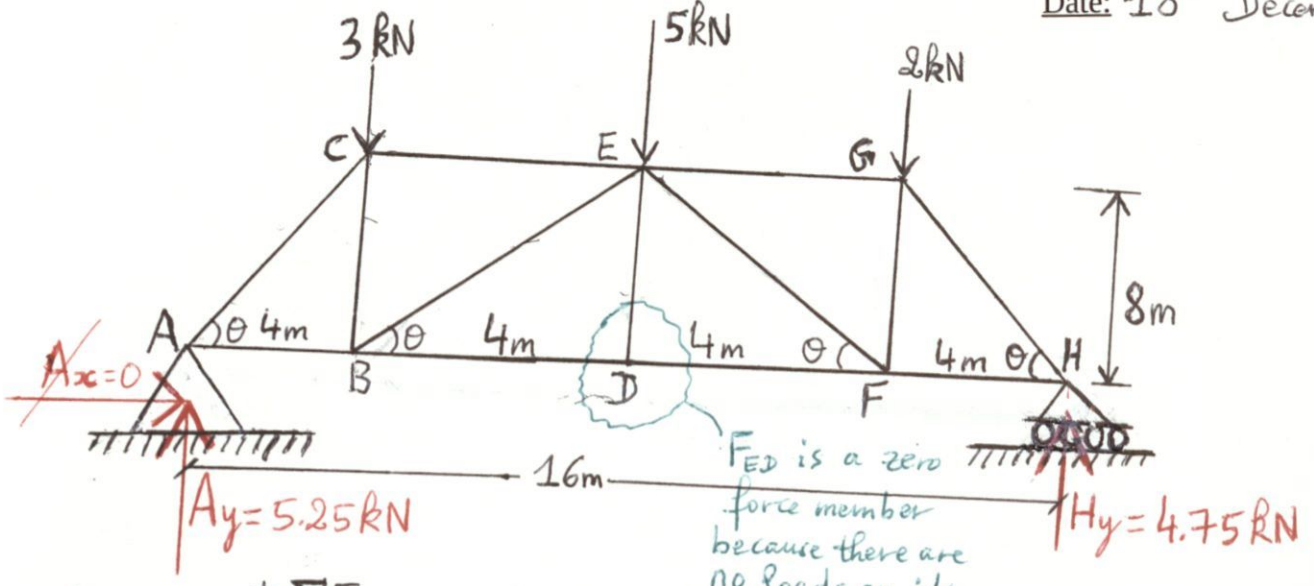
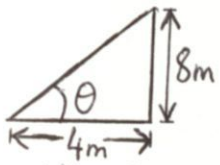




$\tan(\theta) = \frac{8m}{4m}$

$\theta = \tan^{-1}\left(\frac{8}{4}\right) = 63.43°$

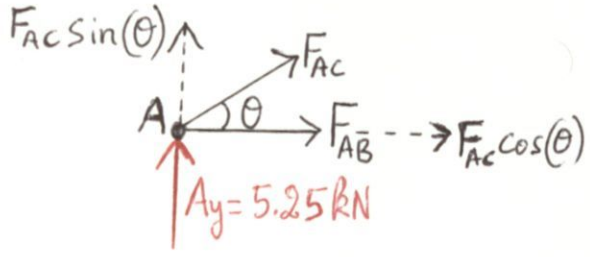
$\pm\rightarrow \sum F_x = 0$; $A_x = 0$

$+\circlearrowleft \sum M_A = 0$; $(-3kN)(4m) + (-5kN)(8m) + (-2kN)(12m) + (H_y)(16m) = 0$

$\boxed{H_y = 4.75kN}$

$+\uparrow \sum F_y = 0$; $A_y + H_y = 10kN$; $\boxed{A_y = 10kN - 4.75kN = 5.25kN}$

Joint A (FBD)



$+\uparrow \sum F_y = 0$; $F_{AC}\sin(\theta) + A_y = 0$

$F_{AC}\sin(63.43°) + (5.25kN) = 0$

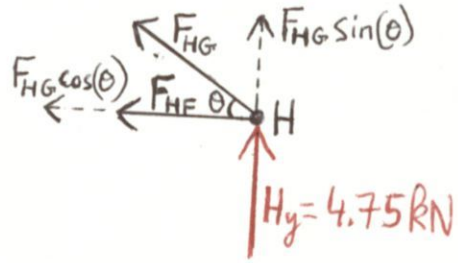
$\boxed{F_{AC} = -5.87kN = 5.87kN(C)}$

$\pm\rightarrow \sum F_x = 0$; $F_{AB} + F_{AC}\cos(\theta) = 0$

$F_{AB} + (-5.87kN)\cos(63.43°) = 0$

$\boxed{F_{AB} = 2.63kN(T)}$

Joint H (FBD)



$+\uparrow \sum F_y = 0$; $F_{HG}\sin(\theta) + H_y = 0$

$F_{HG}\sin(63.43°) + (4.75kN) = 0$

$\boxed{F_{HG} = -5.31kN = 5.31kN(C)}$

$\pm\rightarrow \sum F_x = 0$; $F_{HF} + F_{HG}\cos(\theta) = 0$

$F_{HF} + (-5.31kN)\cos(63.43°) = 0$

$\boxed{F_{HF} = 2.38kN(T)}$

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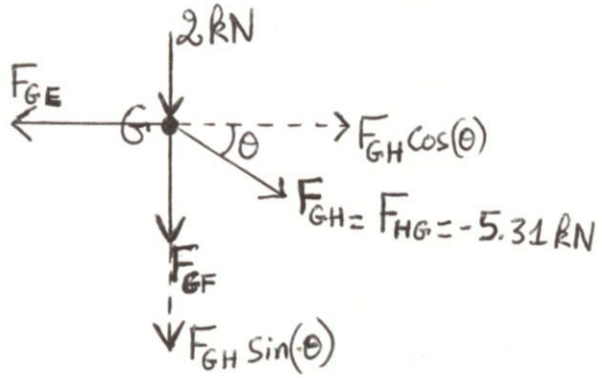
Joint G (FBD)



$\pm\rightarrow\sum F_x = 0$; $F_{GH}\cos(\theta) = F_{GE}$

$$F_{GH} = \frac{F_{GE}}{\cos(\theta)} = \frac{F_{GE}}{\cos(63.43^\circ)} = 2.24F_{GE}$$

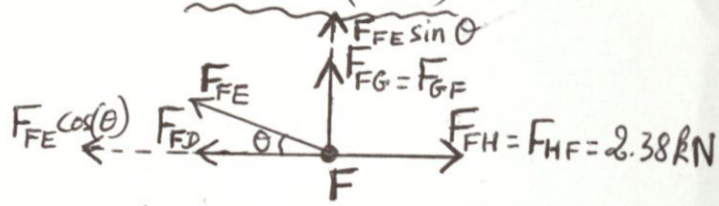
$+\downarrow\sum F_y = 0$; $(2kN) + (F_{GF}) + F_{GH}\sin(\theta) = 0$

$(2kN) + (F_{GF}) + (-5.31kN)\sin(63.43^\circ) = 0$

$F_{GF} = 2.75\,kN\,(T)$

$$F_{GE} = \frac{F_{GH}}{2.24} = \frac{(-5.31kN)}{2.24} = -2.38kN = 2.38\,kN\,(C)$$

Joint F (FBD)



$+\uparrow\sum F_y = 0$; $F_{FG} + F_{FE}\sin(\theta) = 0$

$(2.75kN) + F_{FE}\sin(63.43^\circ) = 0$

$F_{FE} = -3.07\,kN = 3.07\,kN\,(C)$

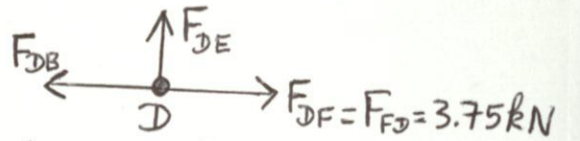
$\pm\rightarrow\sum F_x = 0$

$F_{FE}\cos(\theta) + F_{FD} = F_{FH}$

$(-3.07kN)\cos(63.43^\circ) + F_{FD} = 2.38kN$

$F_{FD} = 3.75\,kN\,(T)$

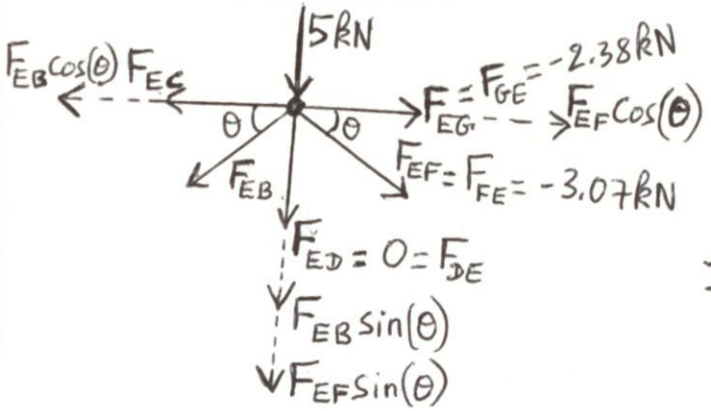
Joint D (FBD)



$+\uparrow\sum F_y = 0$; $F_{DE} = 0$ = zero force member

$\pm\rightarrow\sum F_x = 0$; $F_{DB} = F_{DF} = 3.75\,kN\,(T)$

Joint E (FBD)



$+\downarrow\sum F_y = 0$; $(5kN) + (0) + F_{EB}\sin(63.43^\circ) + (-3.07kN)\sin(63.$

$F_{EB} = -2.52\,kN = 2.52\,kN\,(C)$

$\pm\rightarrow\sum F_x = 0$; $F_{EB}\cos(\theta) + F_{EC} = F_{EG} + F_{EF}\cos(\theta)$

$(-2.52kN)\cos(63.43^\circ) + F_{EC} = (-2.38kN) + (-3.07kN)\cos(63.43^\circ)$

$F_{EC} = -2.63\,kN = 2.63\,kN\,(C)$

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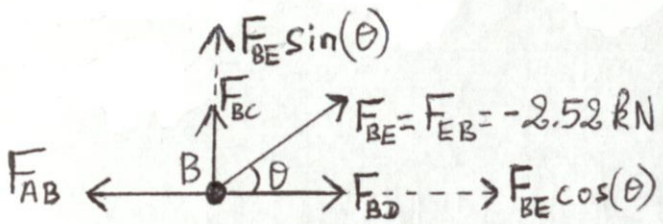
Joint B (FBD)



$+\uparrow \Sigma F_y = 0$; $F_{BC} + F_{BE}\sin(\theta) = 0$

$F_{BC} + (-2.52\,kN)\sin(63.43°) = 0$

$\boxed{F_{BC} = 2.25\,kN\,(T)}$