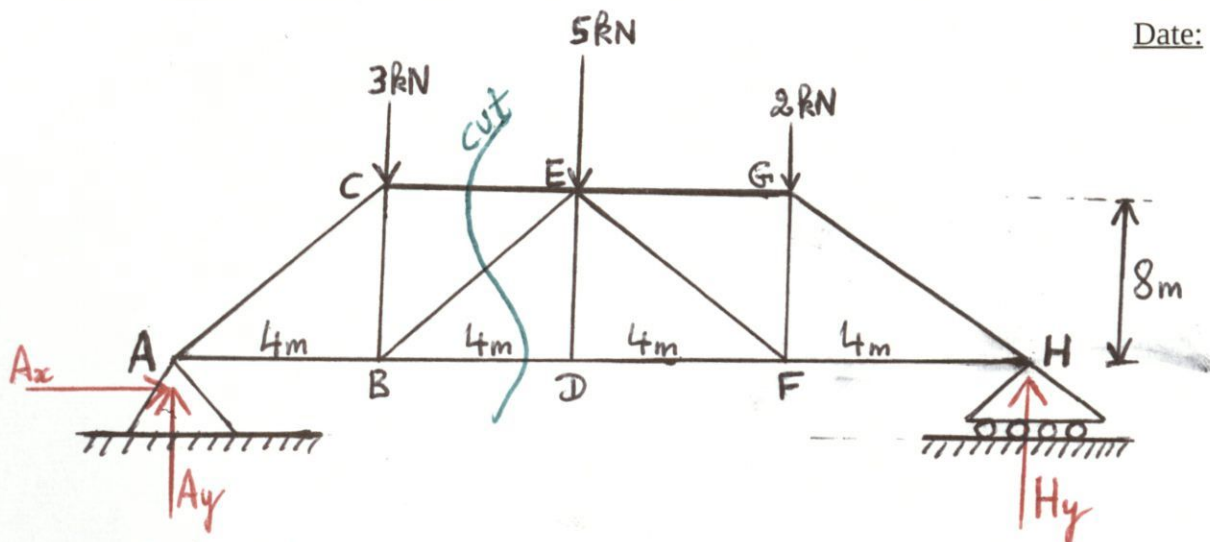


Date: 5th December 2018



Find reactions

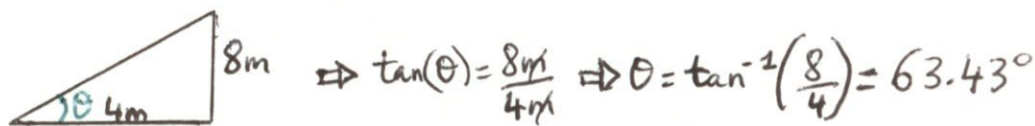
$$\rightarrow \sum F_x = 0; A_x = 0$$

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

$$H_y = 4.75kN$$

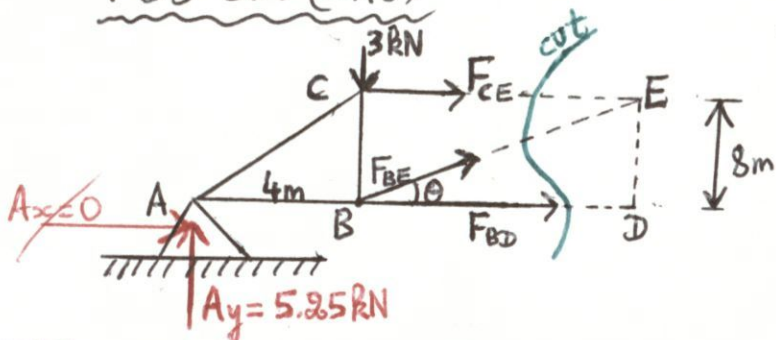
$$\uparrow \sum F_y = 0; A_y + H_y = 3kN + 5kN + 2kN \Rightarrow A_y = 10kN - 4.75kN = 5.25kN$$

Find angles



Find forces in member CE, BE, BD using Method of sections

FBD Cut (LHS)



$$\uparrow \sum M_B = 0; (-F_{CE})(8m) + (-5.25kN)(4m) = 0$$

$$F_{CE} = -2.625kN = 2.625kN(C)$$

$$\uparrow \sum F_y = 0$$

$$A_y - 3kN + F_{BE} \sin(\theta) = 0$$

$$(5.25kN) - (3kN) + F_{BE} \sin(63.43^\circ) = 0$$

$$F_{BE} = -2.516kN = 2.516kN(C)$$

$$\rightarrow \sum F_x = 0; F_{BD} + F_{BE} \cos(\theta) + F_{CE} = 0$$

$$F_{BD} + (-2.516kN) \cos(63.43^\circ) + (-2.625kN) = 0 \Rightarrow F_{BD} = 3.750kN(T)$$