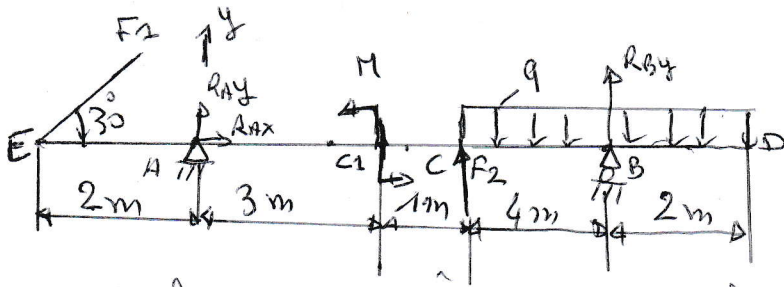


Exercice N°3



$F_1 = 10 \text{ kN}, F_2 = 4 \text{ kN}$
 $Q = q \times CD = 5 \times 6 \text{ kN}$
 $M = 14 \text{ kN.m}$

Calcul des réactions aux appuis en A et B
 $\sum \vec{F}_i = 0 \Rightarrow \sum \vec{F}_{xi} = 0$ et $\sum \vec{F}_{yi} = 0$ et $\sum \vec{M}_{/A} = 0$ ou $\sum \vec{M}_{/B} = 0$.

$\sum \vec{F}_{xi} = 0 \Leftrightarrow -F_1 \cos 30^\circ + R_{Ax} = 0 \Rightarrow R_{Ax} = F_1 \cos 30^\circ$
 $R_{Ax} = 10 \cos 30^\circ = 8,66 \text{ kN}$

$\sum \vec{F}_{yi} = 0 \Leftrightarrow -F_1 \sin 30^\circ + F_2 - Q + R_{Ay} + R_{By} = 0$
 $\Leftrightarrow R_{Ay} + R_{By} = F_1 \sin 30^\circ - F_2 + Q$

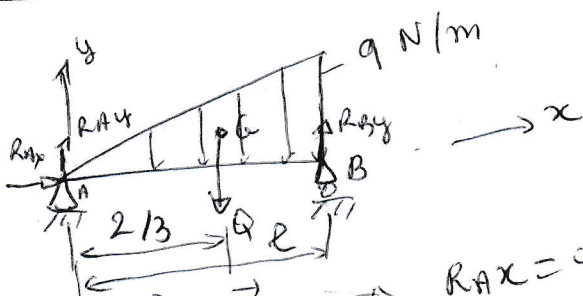
$R_{Ay} + R_{By} = 10 \times \sin 30^\circ - 4 + 30 = 31 \text{ kN}$

$\sum \vec{M}_{/A} = 0 \Leftrightarrow F_1 \sin 30^\circ \times 2 + 14 + F_2 \cdot 4 - Q \times (\frac{6}{2} + 4) + R_{By} \cdot 8 = 0$

$R_{By} = \frac{-10 - 14 - 16 + 240}{8} = 21,25 \text{ kN}$

$R_{Ax} = 31 - 21,25 = 9,75 \text{ kN}$

Exercice N°4



$Q = \frac{q \times l}{2}$

$\sum \vec{F}_{xi} = 0 \Rightarrow R_{Ax} = 0$

$\sum \vec{F}_{yi} = 0 \Leftrightarrow R_{Ay} - \frac{q \times l}{2} + R_{By} = 0 \quad (1)$

$\sum \vec{M}_{/A} = 0 \Leftrightarrow -\frac{q \times l}{2} \left(\frac{2}{3} l \right) + R_{By} \times l = 0$

$\Rightarrow R_{By} = \frac{1}{l} \left(\frac{q \times l}{2} \times \frac{2}{3} l \right) = \frac{q \times l}{3} \Rightarrow R_{By} = \frac{q \times l}{3}$

$(1) \Rightarrow R_{Ay} = \frac{q \times l}{2} - \frac{q \times l}{3} = \frac{q \times l}{6} \Rightarrow R_{Ay} = \frac{q \times l}{6}$