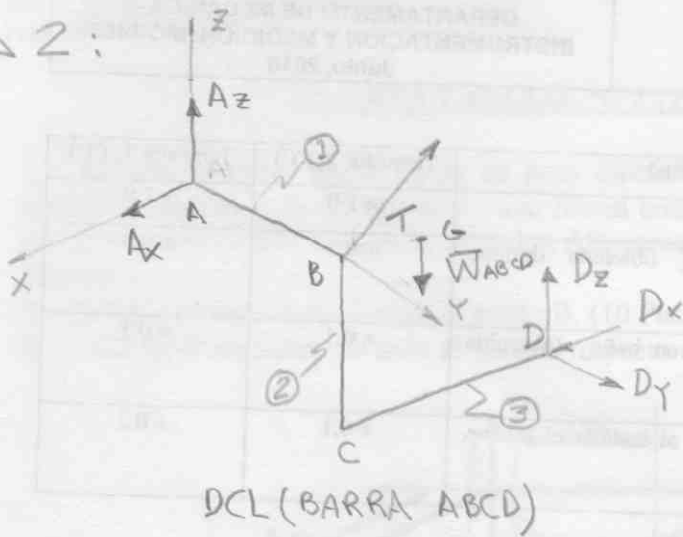


$$M_{CE} = 7065 \left(-\frac{1}{\sqrt{2}}\right) + 212.13 \left(\frac{1}{\sqrt{2}}\right)$$

$$M_{CE} = -4845.7 \text{ N.m}$$

PROBLEMA 2:



$$\vec{T} = T \hat{e}_{BE}, \quad \hat{e}_{BE} = \frac{\vec{BE}}{BE}$$

$$\hat{e}_{BE} = \frac{-2\hat{i} + 2\hat{k}}{2\sqrt{2}} = \frac{(-\hat{i} + \hat{k})}{\sqrt{2}}$$

$$\vec{T} = \frac{T}{\sqrt{2}} (-\hat{i} + \hat{k})$$

$$T = d?$$

$$\vec{W}_{ABCD} = -60\hat{k} \text{ [N]}$$

⇒ TOMANDO $\sum M_{AD}^E = 0$ (MOMENTO RESPECTO A EJE QUE PASA POR A Y D).

SE REQUIERE HALLAR AL MENOS x_G, y_G : (REFERENCIA: $AXYZ$), $A = (0,0,0)$.

ELEMENTO	x_{ci}	y_{ci}	L_i	$x_{ci}L_i$	$y_{ci}L_i$
① (AB)	0	1	2	0	2
② (BC)	0	2	2	0	4
③ (CD)	-1	2	2	-2	4
			Σ	6	10

$$x_G = \frac{\sum x_{ci}L_i}{\sum L_i} = \frac{-2}{6} = -\frac{1}{3}$$

$$y_G = \frac{\sum y_{ci}L_i}{\sum L_i} = \frac{10}{6} = \frac{5}{3}$$

$$G = \left(-\frac{1}{3}, \frac{5}{3}, z_G\right) \text{ [m]}$$

- EQUILIBRIO ESTÁTICO:

$$\sum M_{AD}^E = \vec{M}_A^E \cdot \hat{e}_{AD} = 0, \quad \hat{e}_{AD} = \frac{\vec{AD}}{AD} = \frac{-2\hat{i} + 2\hat{j} - 2\hat{k}}{2\sqrt{3}} = \frac{1}{\sqrt{3}} (-\hat{i} + \hat{j} - \hat{k})$$

$$= [\vec{AB} \times \vec{T} + \vec{AG} \times \vec{W}_{ABCD}] \cdot \hat{e}_{AD} = 0$$

$$= \left[2\hat{j} \times \frac{T}{\sqrt{2}} (-\hat{i} + \hat{k}) + \left(-\frac{1}{3}\hat{i} + \frac{5}{3}\hat{j}\right) \times (-60\hat{k}) \right] \cdot \frac{1}{\sqrt{3}} (-\hat{i} + \hat{j} - \hat{k}) = 0$$

$$= \left[\frac{2T}{\sqrt{2}} \hat{i} + \frac{2T}{\sqrt{2}} \hat{k} - 100\hat{i} - 20\hat{j} \right] \cdot \frac{1}{\sqrt{3}} (-\hat{i} + \hat{j} - \hat{k}) = 0$$

$$= \left[\left(-100 + \frac{2T}{\sqrt{2}}\right) \hat{i} - 20\hat{j} + \frac{2T}{\sqrt{2}} \hat{k} \right] \cdot \frac{1}{\sqrt{3}} (-\hat{i} + \hat{j} - \hat{k}) = 0$$

$$= \left[-100 + \frac{2T}{\sqrt{2}} \right] \left(-\frac{1}{\sqrt{3}}\right) - \frac{20}{\sqrt{3}} - \frac{2T}{\sqrt{2}} \cdot \frac{1}{\sqrt{3}} = 0 \Rightarrow \frac{100}{\sqrt{3}} - \frac{4T}{\sqrt{6}} - \frac{20}{\sqrt{3}} = 0$$

$$\Rightarrow \boxed{T = 20\sqrt{2} \text{ N}} \quad (= 28.28 \text{ N})$$