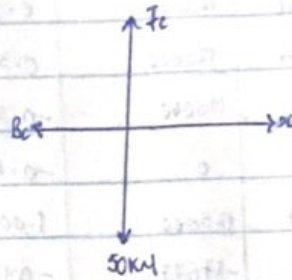


Ladan Fidalah
 Civil Engineering
 17/ENGL03/033
 Structural Mechanics
 Assignment 1

At joint C →



from previous calculated example,

$$B_c = 50 \text{ kN}$$

$$\therefore -B_c + D_c = 0 \quad (\text{Resolving to horizontal}).$$

$$-50 + D_c = 0$$

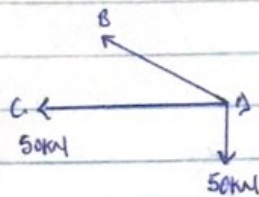
$$D_c = 50 \text{ kN} \quad (\text{Compressional})$$

Resolving to vertical

$$\rightarrow -50 \text{ kN} + F_c = 0$$

$$F_c = 50 \text{ kN} \quad (\text{Tensional})$$

At point D



$$\text{Resolving to horizontal} = -50 \text{ kN} - DE \cos 45 = 0$$

$$50 \text{ kN} = -DE \cos 45$$

$$DE = \frac{50}{-\cos 45} = -70.7$$

$$-\cos 45$$

$$DE = 70.7 \text{ Compressional}$$

Member	P (kN)	l (m)	a (m ²)	$P = \frac{P}{a}$ (kN/m ²)	α	P_{ul}
AF	-70.71	4.24	0.0094	-176775	-0.471	353026.75
AB	50	3	0.0094	125000	0.333	124875
BC	50	3	0.0094	125000	0.666	249750
BF	50	3	0.0094	125000	0.333	124875
FE	50	3	0.0094	125000	-0.333	-124875
BE	0	4.24	0.0094	0	-0.471	0
EC	50	3	0.0094	125000	1.000	375000
ED	-70.71	4.24	0.0094	-176775	-0.942	706053.492
CD	50	3	0.0094	125000	0.666	249750

$$\Sigma = 2058455.24$$

$$\frac{\Sigma P_{ul}}{2} = \frac{2058455.24}{2} = 1029227.62$$

$$200.000$$

$$= 10.29 \text{ mm}$$