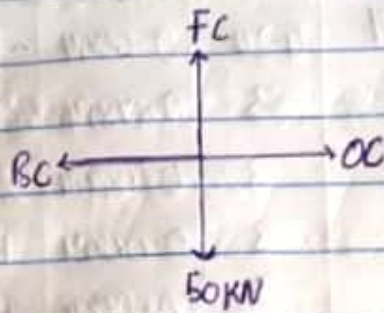


Name : Uyanwa Victor Peter
Matric No: 17/ENG 03/036
Department : Civil Engineering

Structural Mechanics

At joint C \Rightarrow



from previous calculated example

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

$$\therefore -BC + DC = 0 \quad (\text{Resolving to horizontal})$$

$$-50 + DC = 0$$

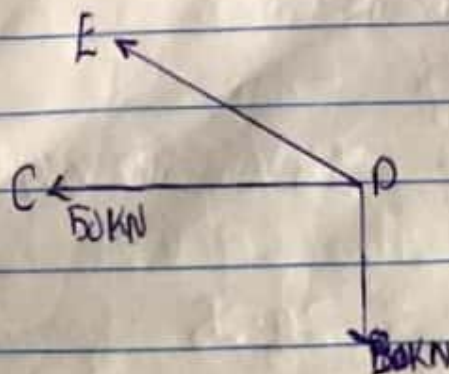
$$DC = 50 \text{ kN} \quad (\text{Compressional})$$

Resolving to vertical

$$\Rightarrow -50 \text{ kN} + FC = 0$$

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

At joint D



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

$$50 \text{ kN} = -0E \cos 45$$

$$0E = \frac{50}{-\cos 45} = -70.7$$

$$-0E \cos 45$$

0E : 70.7 Compressional

MEMBER	P	L (m)	A	$P = \frac{P}{A}$	-u	PuL
AF	-70.71	4.24	0.0004	-176775	-0.471	353026.75
AB	50	3	0.0004	125000	0.333	124875
BC	50	3	0.0004	125000	0.666	249750
BF	50	3	0.0004	125000	0.333	124825
FE	50	3	0.0004	125000	-0.333	-124825
BE	0	4.24	0.0004	0	-0.471	0
EC	50	3	0.0004	125000	1.000	375000
ED	-70.71	4.24	0.0004	-176775	-0.942	706053.492
CD	50	3	0.0004	125000	0.666	249750
						$\Sigma = 2058455.24$

$$\frac{\Sigma PuL}{E} = \frac{2058455.24}{200000} = 10.29 \text{ mm}$$