

KUNDE SHARIN SEPINEN

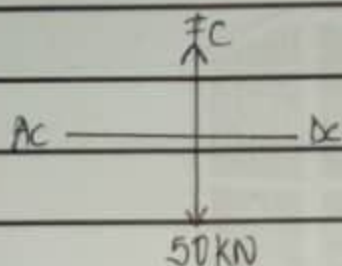
17/ENG03/032

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## STRUCTURAL MECHANICS

### SOLUTION

At point C



From example calculated previously

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

$$\therefore -Bc + Dc = 0 \quad (\text{Resolving to the horizontal})$$

$$-50 + Dc = 0$$

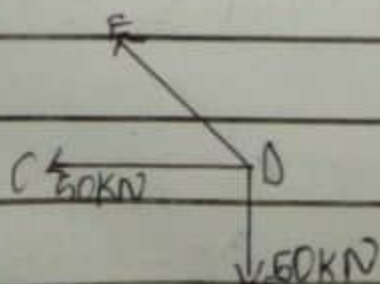
$$Dc = 50 \text{ kN} \quad (\text{tensional})$$

Resolving to the vertical

$$-50 \text{ kN} + Fc = 0$$

$$Fc = 50 \text{ kN} \quad (\text{tensional})$$

At point D



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

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

$$DE = \frac{50}{-\cos 45} = \frac{50}{-0.707} = -70.7$$

$\therefore DE = -70.7$  (compresion)

member	P (kN)	t (m)	a (m <sup>2</sup> )	$P/a$ (kN/m <sup>2</sup> )	u	PuI
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	124875
FE	50	3	0.0004	125000	<del>0.333</del> -0.471	-124875
BE	50	4.24	0.0004	0	<del>0.471</del> 0	0
EC	50	3	0.0004	125000	<del>0.942</del> 1.000	375000
ED	-70.71	4.24	0.0004	-176775	<del>0.942</del> 0.666	706053.49
CD	50	3	0.0004	125000	0.666	249750
						$\Sigma = 2058455.24$

$$\frac{\Sigma PuI}{E} = \frac{2058455.24}{200000}$$

$$= 10.29 \text{ mm}$$