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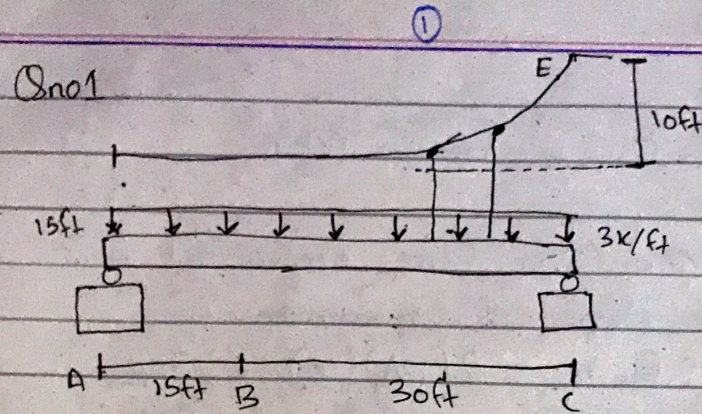
ID :- 7487

Semester :- 12th

Subject :- Structure Analysis I

Assignment :- 4

Submitted to :- Engr. Amjad Islam



Member BC :-

→ +ve $\sum F_x = 0$; $B_x = 0$

Member AB :-

+ve $\sum F_x = 0$; $A_x = 0$

→ FBD 1:

(+) +ve $\sum M_A = 0$

$F_H(1) - B_y(15) - 45(7.5) = 0$

→ FBD 2:

(-) +ve $\sum M = 0$

$-F_H(10) - B_y(30) + 45(30) = 0$

②

Now

$$B_y = 0; F_H = F_{min} = 136k$$

Now Max Cable force occurs at E
where slope is maximum

$$w_0 = \frac{2 F_H h}{L^2} = \frac{2(136)(10)}{30^2} = \frac{2700}{900}$$

$$w_0 = \frac{3k}{ft}$$

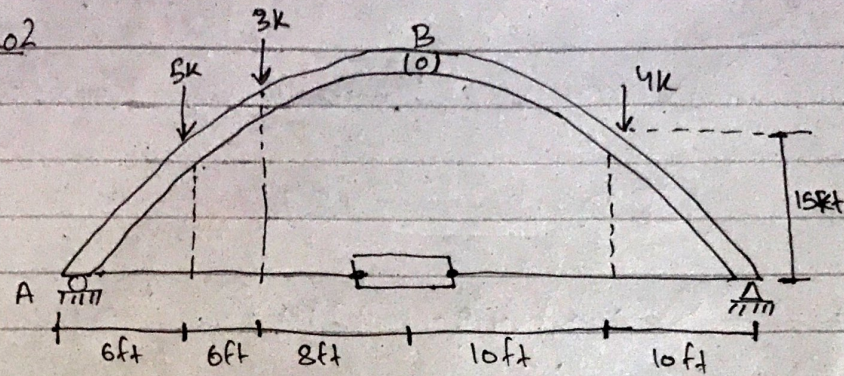
$$F_{max} = 162.24k$$

Each hanger carries 7.5ft of w_0

$$T = (3k/ft)(7.5ft)$$

$$T = 22.5k$$

Qno2



$$\sum \text{ve} \Rightarrow \sum M_A = 0$$

$$-5(6) - 3(12) - 4(30) + P_y(40) = 0$$

$$P_y = \frac{30 + 36 + 120}{40} = \frac{186}{40} = 4.65 \text{ k}$$

$$\sum \text{ve} \uparrow \Rightarrow \sum F_y = 0$$

$$\Delta_y = 4.65 - 5 - 3 - 4 = 0$$

$$\Delta_y = 12 - 4.65 = 7.35 \text{ k}$$

Section BC :- \rightarrow

$$\sum \text{ve} \Rightarrow \sum M_B = 0$$

$$-4(10) - T(15) + 4.65(20) = 0$$

$$T = \frac{53}{15} = 3.534 \text{ k}$$