

ID

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Section

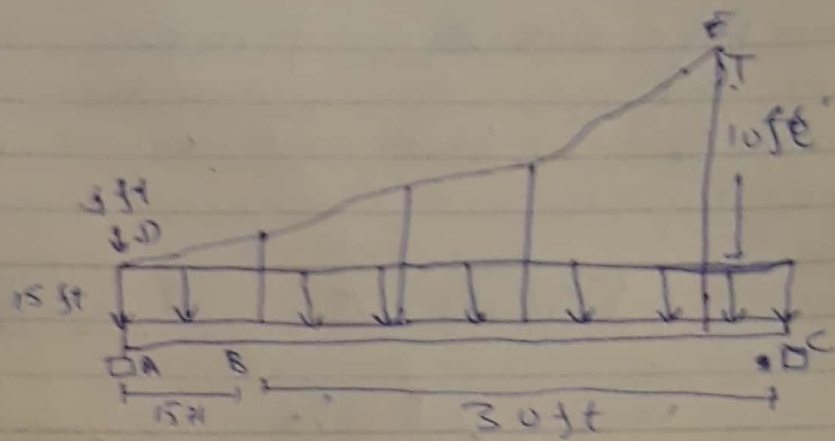
B

Assignment

(4)

Subject

Structural



Sol

Member BC
 $\rightarrow \sum F_x = 0;$

$$A_x = 0$$

FBD 1

$$\hookrightarrow +\sum M_A = 0;$$

$$F_H(1) - B_y(15) - 30(7.5) = 0$$

FBD 2 :-

$$\hookrightarrow +\sum M_C = 0;$$

$$- F_H(10) - B_y(30) + 90(15) = 0$$

Sol

$$B_y = 0$$

$$F_H = E_{min}$$

$$225 \text{ k}$$

Maxiabile force occurs
at E where slope
 Δ the maximum

From eq 5-8

$$w_0 = \frac{2FH}{L^2} = \frac{3(225)(10)}{30^2}$$

$$= \boxed{7.5 \text{ k/ft}}$$

from eq 5-11

$$F_{\max} = w_0 L \left[L + \left(\frac{L}{2n} \right)^2 \right]$$

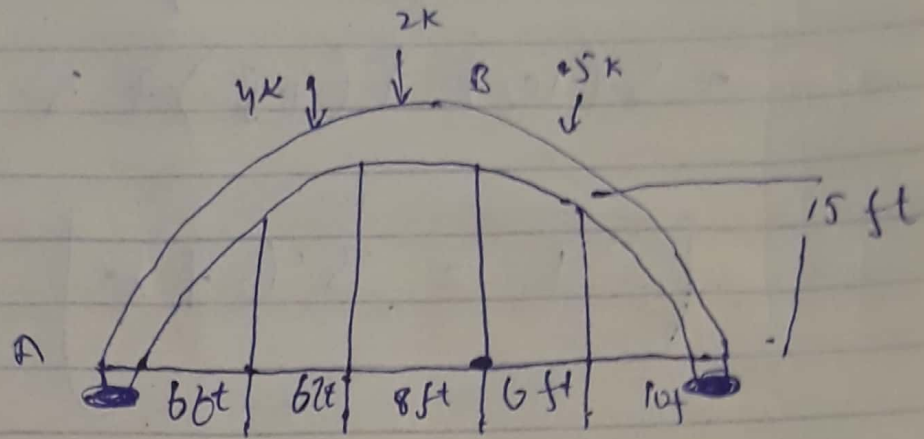
$$= 3(30) \left[L + \left(\frac{30}{3(10)} \right)^2 \right]$$

$$F_{\max} = \cancel{210} \boxed{127.2 \text{ k}}$$

Each hanger carries
5ft of w_0

$$T = (3 \text{ k/ft})(5) = \boxed{15 \text{ k}}$$

Q2



Entire Arch

$$\rightarrow \sum M_A = 0;$$

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

$$C_y = 5.5k$$

$$+\uparrow \sum f_y = 0;$$

$$A_y + 5 \cdot 25 - 4 - 3 - 5 = 0$$

$$A_y = 6.75k$$

$$\rightarrow \sum F_x = 0;$$

$$A_x = 0$$

Section BC

$$\hookrightarrow + \sum M_B = 0;$$

$$-S(10) - T(10) + 5 \cdot 0.5(20) = 0$$

$$T = 3.67 \text{ k}$$