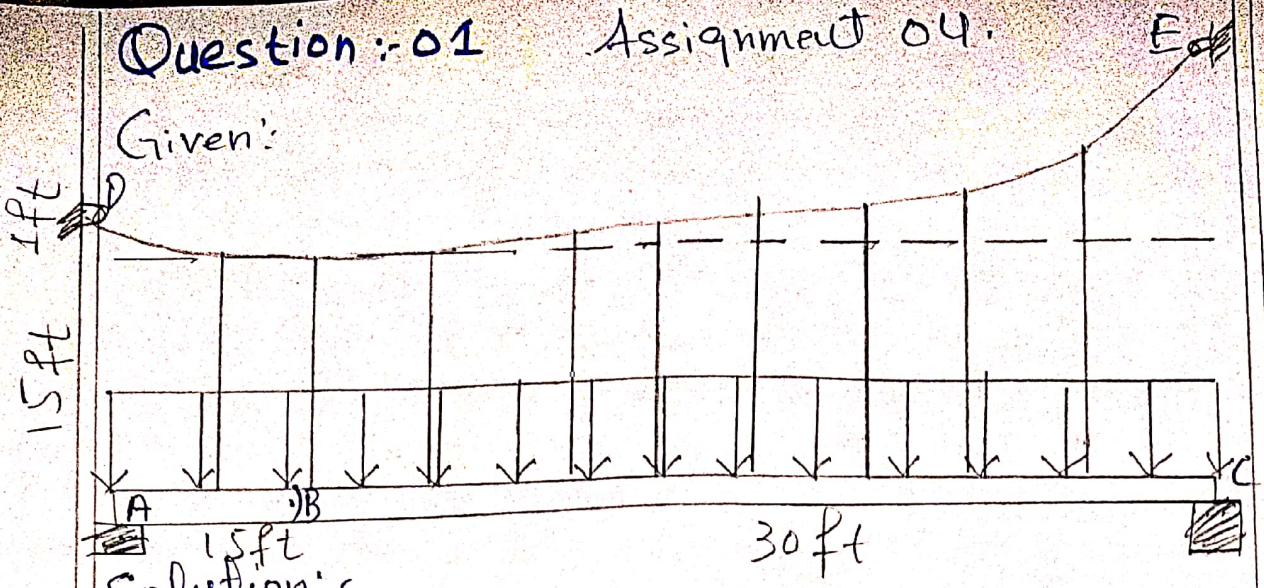
Question :- 01 Assignment 04.

Given:



Solution:-

Member BC:

$\rightarrow \sum F_x = 0;$

$A_x = 0$

FD 1:

$\circlearrowleft + \sum M_A = 0;$

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

BD 2:-

$\circlearrowleft + \sum M_e = 0;$

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

Solution:-

$B_y = 0$

$F_x = F_{xx} = 225\,k$

$w_0 = \frac{2F_x h}{C^2} = \frac{3(225)(10)}{30^2}$

$= 7.5\,k/ft$

from eq 5.11

$$F_{max} = W_1 L \sqrt{1 + \left(\frac{L}{2h}\right)^2}$$

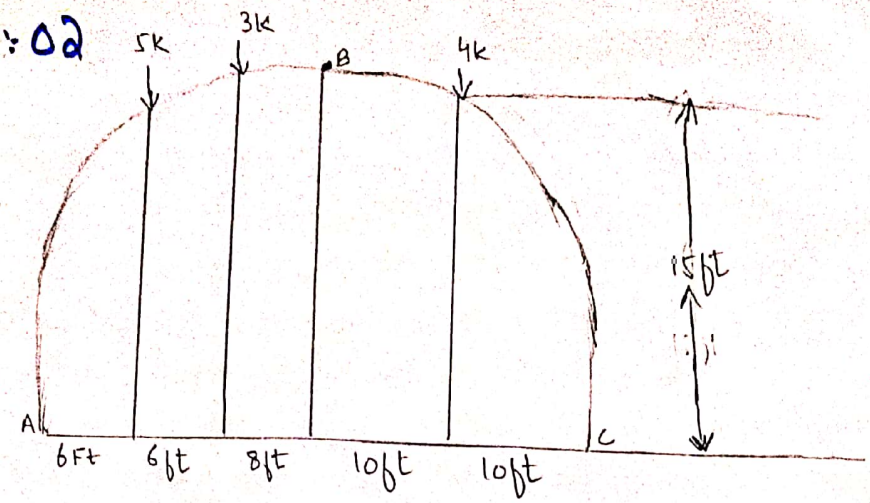
$$= 3(30)\sqrt{1 + \left(\frac{30}{2(10)}\right)^2}$$

$$F_{max} = 127.2\ k$$

Each hanger B carries 5 ft of W_0

$$T = (3\ k/ft)(5) = \boxed{10\ k}$$

Question: 02



$MA = 0$

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

$$Cy = 4.65\,K.$$

Forces:-

$$Fy = 0$$

$$Ay + 4.65 - 5 - 3 - 4 = 0$$

$$Ay = 7.35\,K$$

$$A_2 = 0$$

Bc:

$$\leq MB = 0$$

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

$$T = 3.533K$$