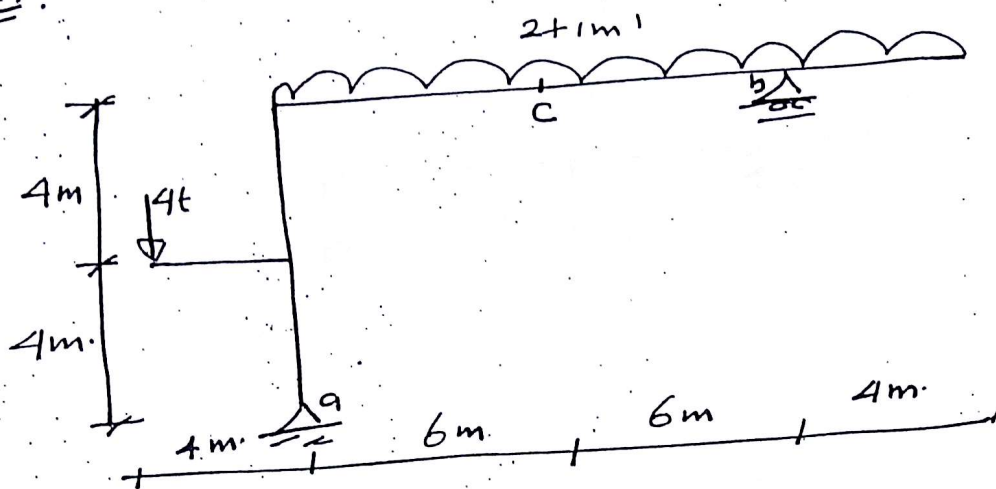


#

⑦

* 7 rames *

EX:1

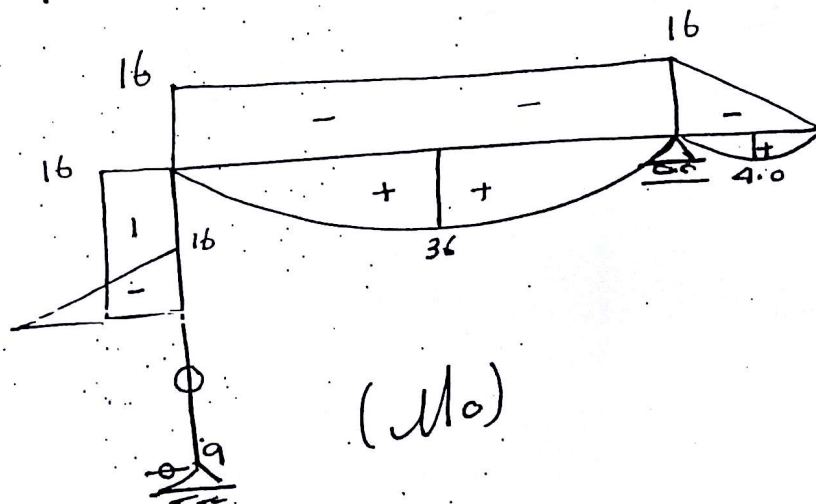


* Find The vertical deflection at Point (c).

← Sol →

(Mo)

میں نے یہ حل کیا ہے۔ یہی F.P. ہے۔



(Mo)

1

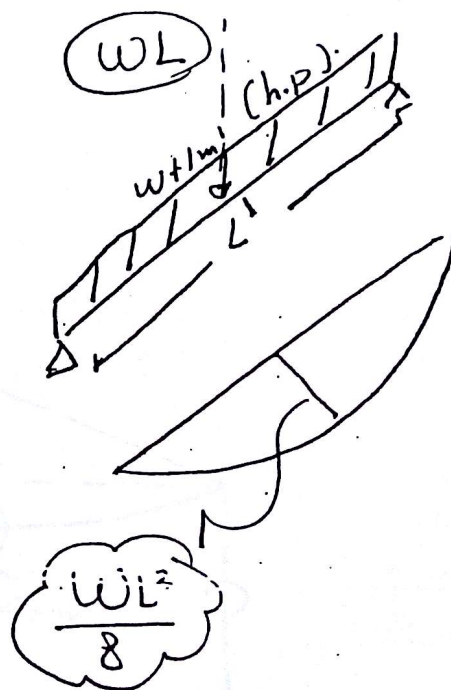
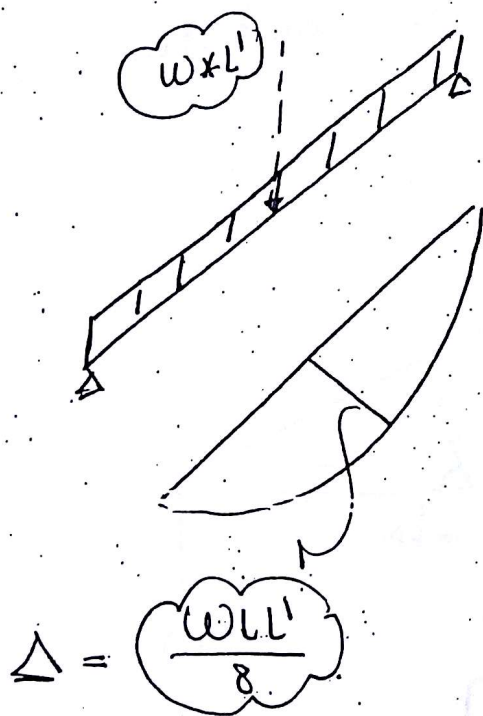
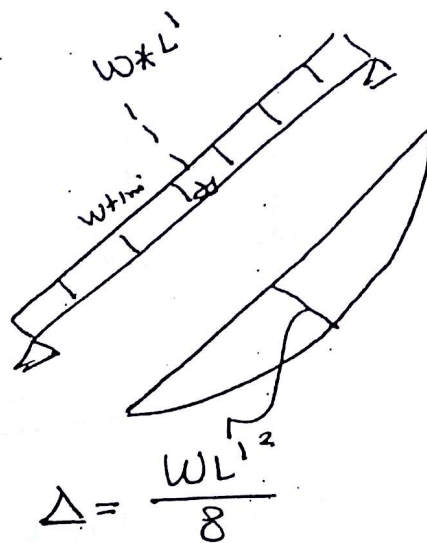
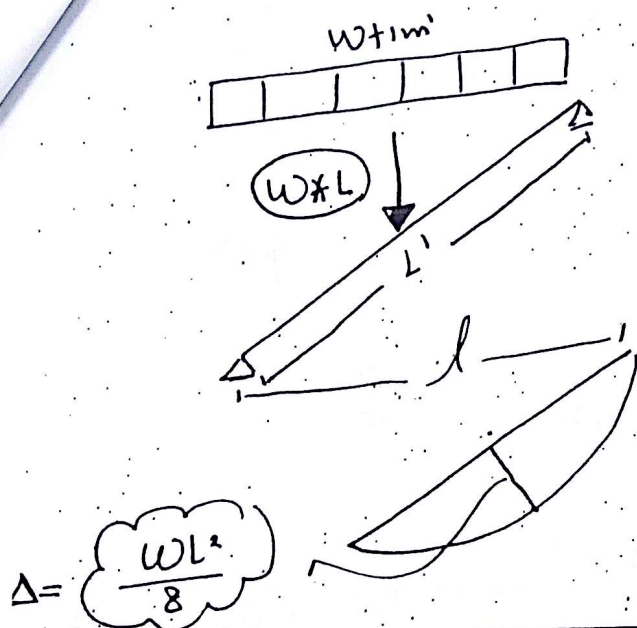
دندھم الل ::

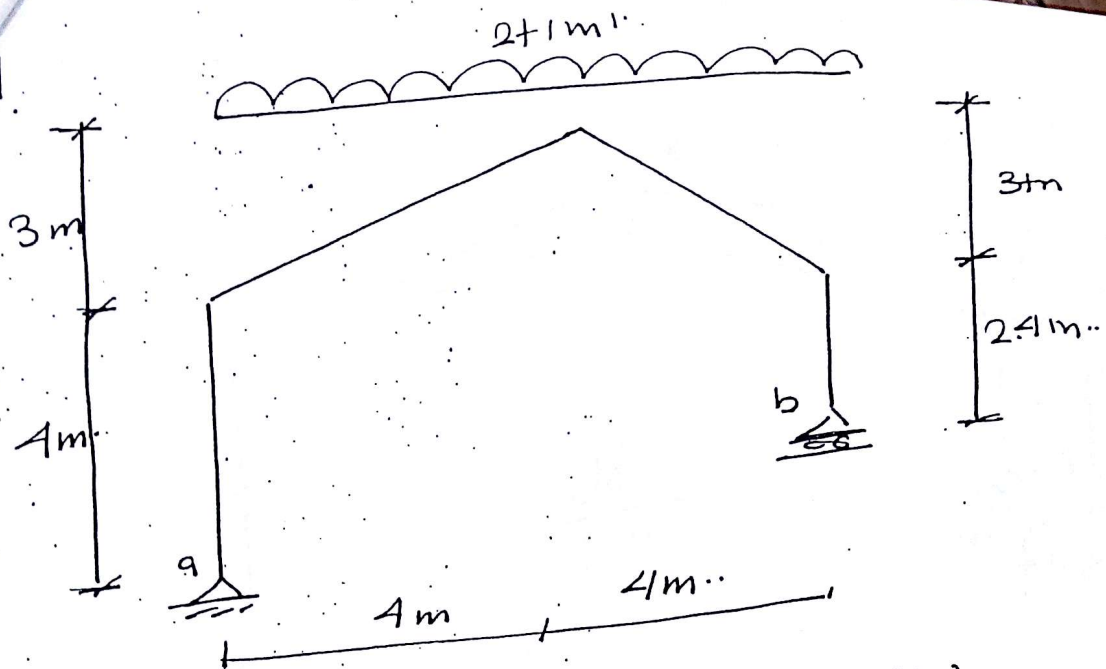


$$= \frac{252}{EI}$$

 $\sqrt{2}$

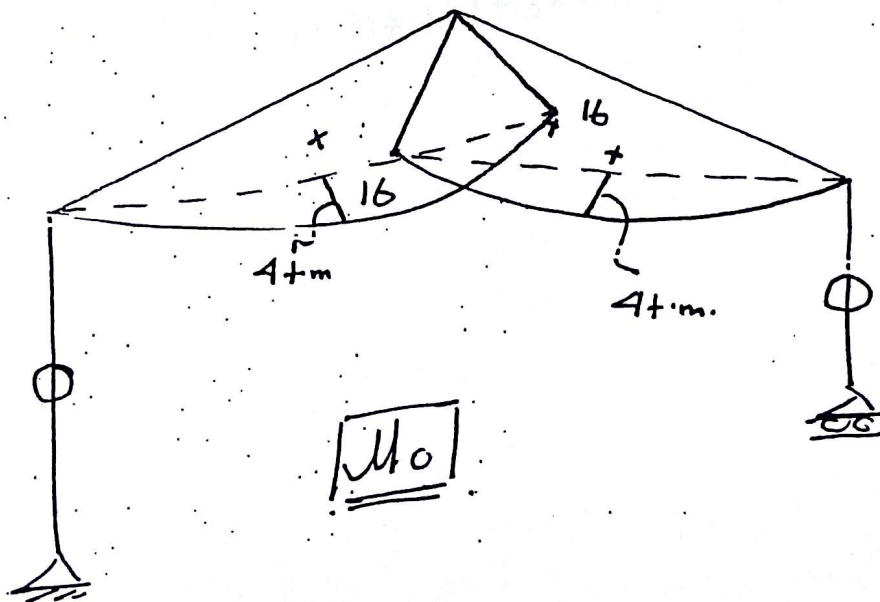
... الجواب ...





Find The horizontal displacement at (b) and Rotation at (b).

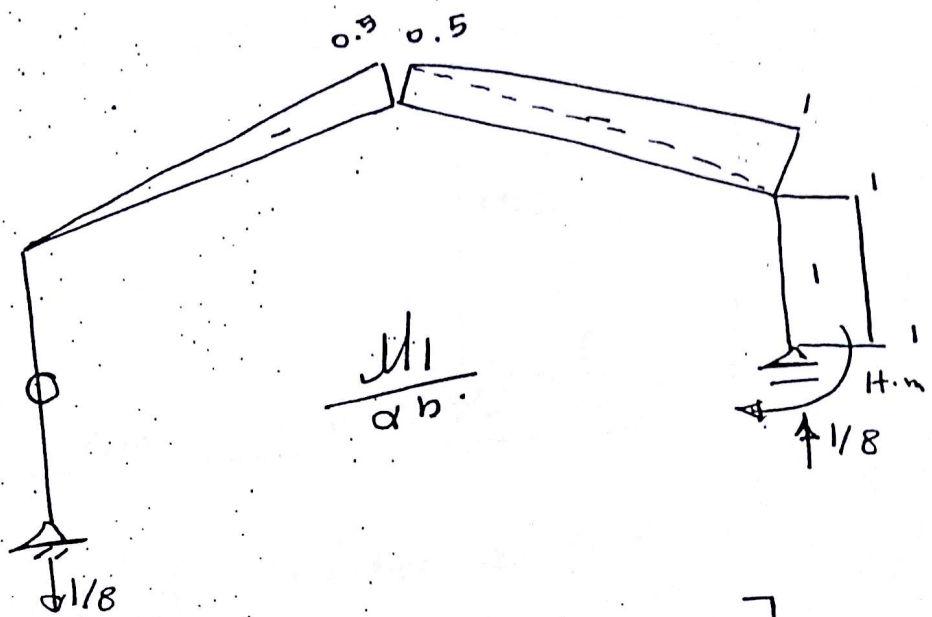
← Sol →



Mo



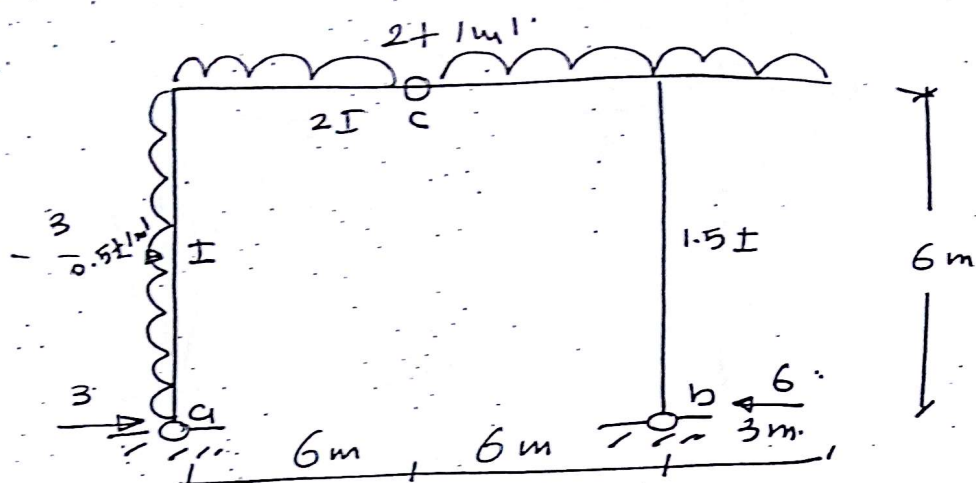
Find Δ_b :



$$\Delta_b = \frac{1}{EI} \left[\begin{aligned} &-(0.5 \times 5 \times 16 \left(\frac{2}{3} \times 0.5 \right)) \\ &-(\frac{2}{3} \times 5 \times 4 \times (0.25)) \\ &-(\frac{2}{3} \times 5 \times 1 \times \left(\frac{1+0.5}{2} \right)) \\ &-(0.5 \times 5 \times 16 \left(\frac{2}{3} \times 0.5 + \frac{1}{3} \right)) \end{aligned} \right]$$

6

X:31



Find Δ_{vc} & α relative at c.

← sol →

Reaction:

$\sum M @ a = 0$

$$0.75 \times 6 \times 3 + 2 \times 1.2 \times 6 + 2 \times 3 \times 13.5 - Y_b \times 12 = 0$$

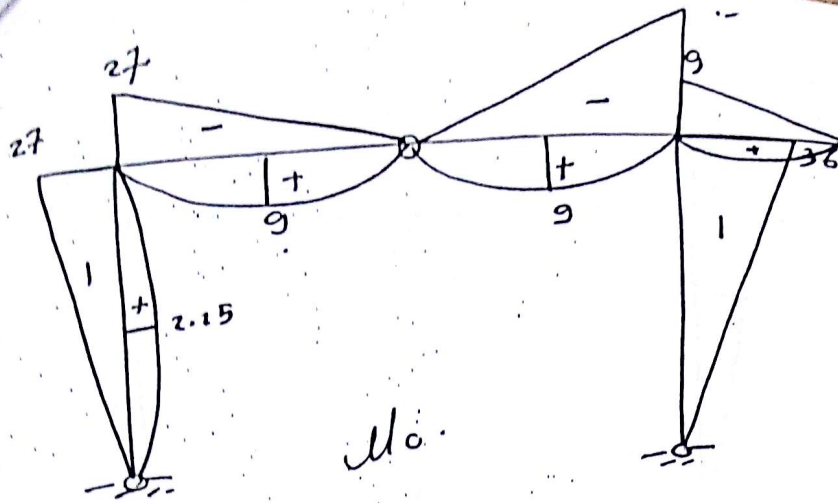
$$Y_b = 10.75$$

$\sum M @ c \text{ (Right)} = 0$

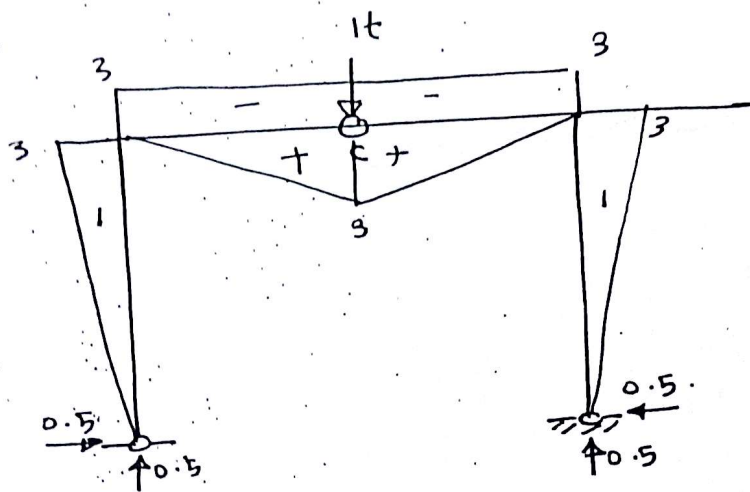
$$2 \times 9 \times 4.5 - 10.75 \times 6 + X_b \times 6 = 0$$

$$X_b = 6$$

7

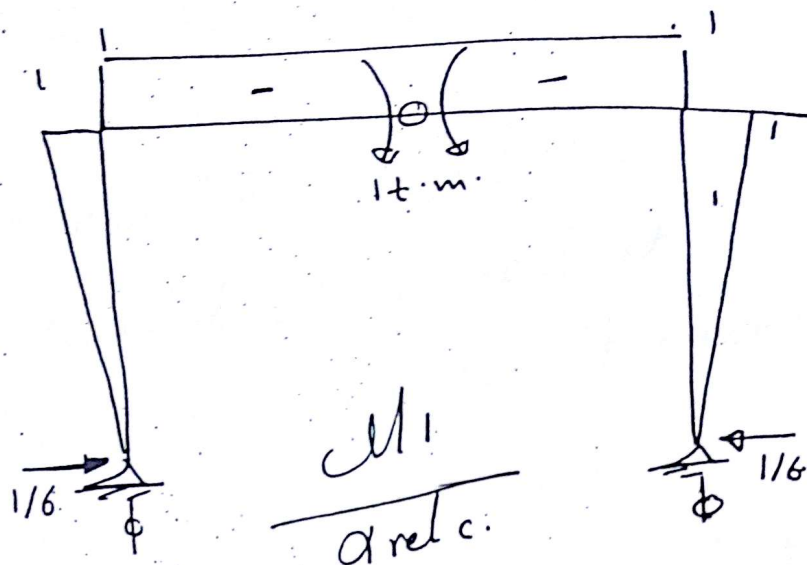


$\sum VLC:$



$$\begin{aligned} \sum VLC = & \frac{1}{EI} \left[(0.5 \times 27 \times 6 \times 2) - \left(\frac{2}{3} \times 6 \times 2.25 \times 1.5 \right) \right] \\ & + \frac{1}{2EI} \left[\left(\frac{1}{2} \times 6 \times 27 \times (-3+1) \right) - \left(\frac{2}{3} \times 6 \times 9 \times (-3+1.5) \right) \times 2 \right. \\ & \quad \left. - 0.5 \times 6 \times 45 \times (-3+1) \right] \\ & + \frac{1}{1.5EI} \left[0.5 \times 6 \times 36 \times 2 \right] \end{aligned}$$

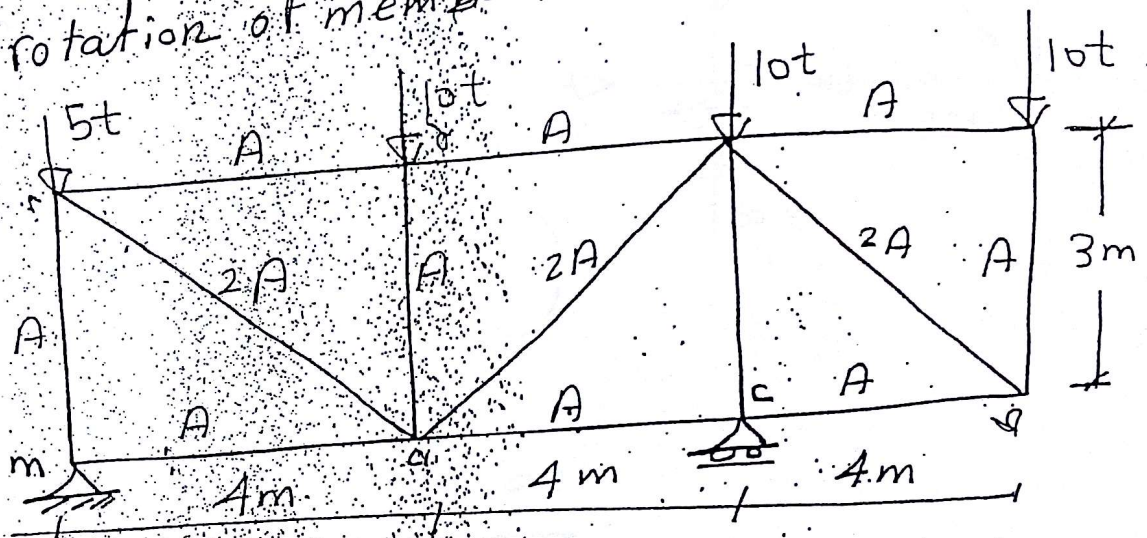
rel c:



EX.1

For The Shown Truss: Find:

- 1) vertical deflection at Point (a)
- 2) horizontal displacement at Point (b)
- 3) The relative displacement between Points (d & c)
- 4) rotation of member (m-n)

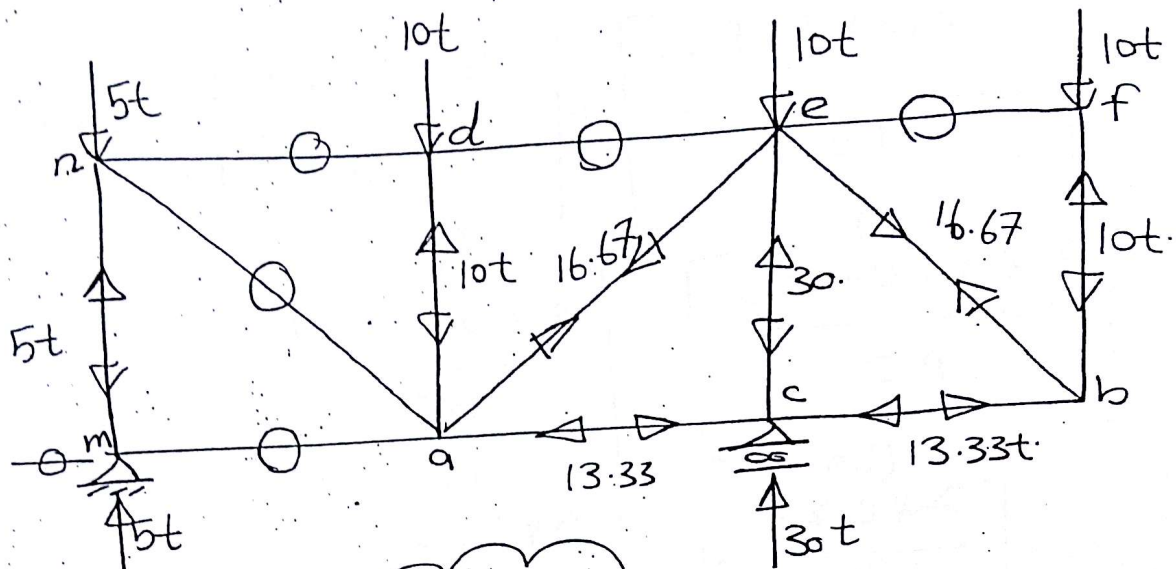


← Sol →

$$\Delta = \frac{F_o \cdot F_i \cdot l}{EA}$$

10

ساختار to به شکل $Truss$ کامل در اینجا
 قوت و جهت را در این شکل نشان می‌دهد.

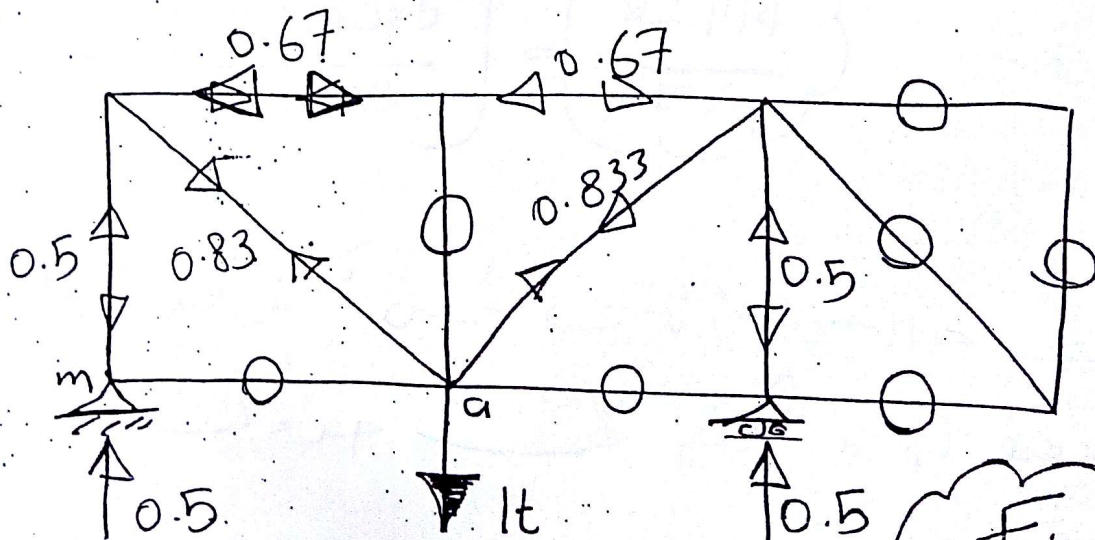


F_0

II Vertical def at (a)

برای این کار دو بار مجزا $1t$ را در
 در نقطه (a) اعمال می‌کنیم و $Truss$ را
 تحلیل می‌کنیم.

F_1



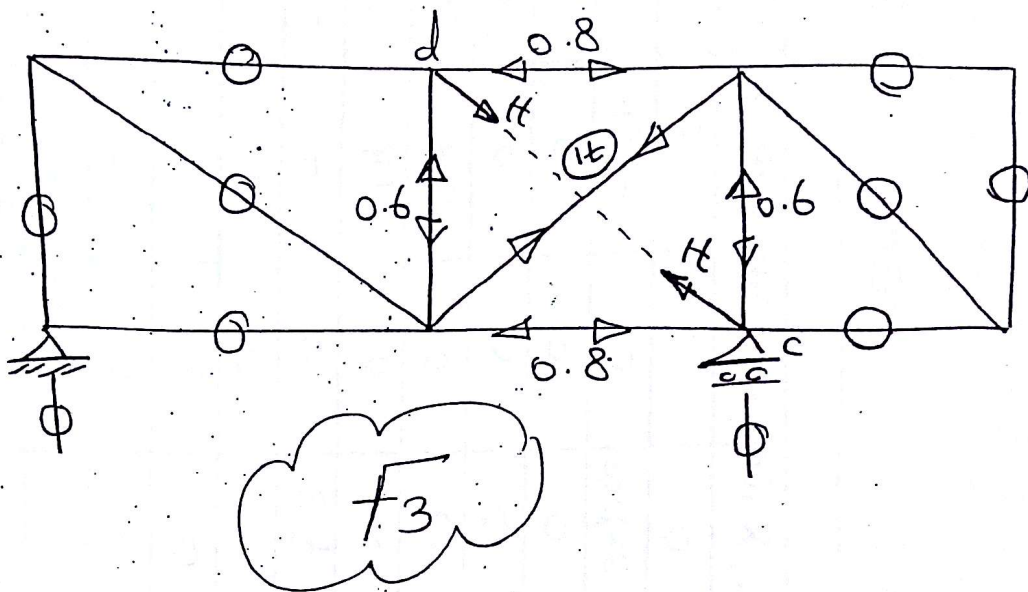
F_1

ایجاد لا $\Delta u_{L(a)}$ سے لفظی قانون کا آئی

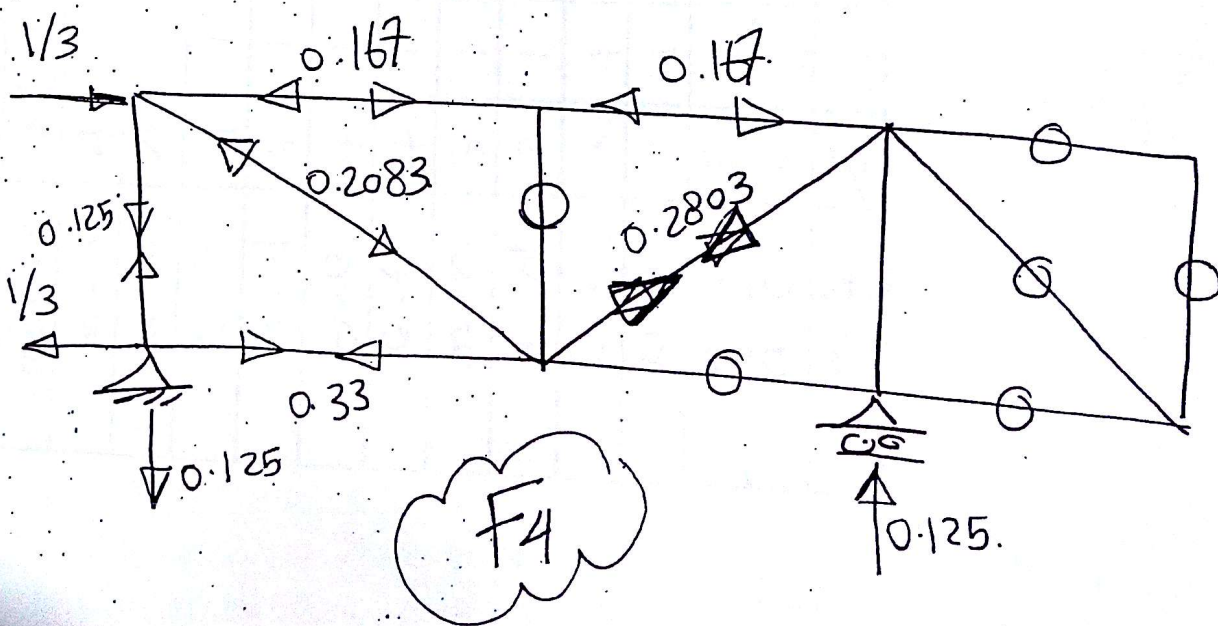
$$\begin{aligned}
 \Delta u_{L(a)} = & \left[\frac{0 \times 0 \times 4}{EA} \right] + \left[\frac{-13.33 \times 0 \times 4}{EA} \right] \\
 & + \left[\frac{-13.33 \times 0 \times 4}{EA} \right] + \left[\frac{0 \times -0.67 \times 4}{EA} \right] \\
 & + \left[\frac{0 \times -0.67 \times 4}{EA} \right] + \left[\frac{0 \times 0 \times 4}{EA} \right] \\
 & + \left[\frac{-5 \times -5 \times 3}{EA} \right] + \left[\frac{10 \times 0 \times 3}{EA} \right] + \left[\frac{30 \times -5 \times 3}{EA} \right] \\
 & + \left[\frac{-10 \times 0 \times 3}{EA} \right] + \left[\frac{0 \times 0.83 \times 5}{2EA} \right] + \left[\frac{16.67 \times 0.83}{2EA} \right] \\
 & + \left[\frac{16.67 \times 0 \times 5}{2EA} \right] = \frac{87.194}{EA}
 \end{aligned}$$

وہ حالت آئی ہے اُنکے سے مختلف
 سے وضع لفظی ہے
 لفظی

3) Relative Displacement between d & c.



4) Rotation of member (m-n) ..

[illegible]

member	l	A	F_0	F_1	F_2	F_3	F_4	$F_0 F_1 l/A$	$F_0 F_2 l/A$	$F_0 F_3 l/A$	$F_0 F_4 l/A$
m-a	4	1	0	0	1	0	0.33	0	0	0	0
a-c	4	1	-13.33	0	1	-0.8	0	0	-53.32	42.65	0
c-b	4	1	-13.33	0	1	0	0	0	-53.32	0	0
n-d	4	1	0	-0.67	0	0	-0.16	0	0	0	0
d-e	4	1	0	-0.67	0	-0.8	-0.16	0	0	0	0
e-f	4	1	0	0	0	0	0	0	0	0	0
m-n	3	1	-5	-5	0	0	0.125	7.5	0	0	0
a-d	3	1	-10	0	0	-0.6	0	0	0	18	-1.875
c-e	3	1	-30	-5	0	-0.6	-0.12	45	0	54	11.25
b-f	3	1	-10	0	0	0	0	0	0	0	0
a-n	5	2	0	0.83	0	0	0.28	0	0	0	0
a-e	5	2	16.67	0.83	0	1	0.28	34.69	0	41.65	11.67
e-b	5	2	16.67	0	0	0	0	0	0	0	0
Σ								78.194	-106.64	156.3	24.7

EA