

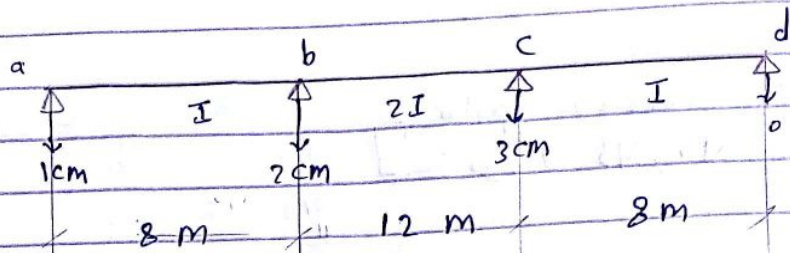
{ No load effect }

حاضرة استراكت

$$EI = 5000 \text{ t.m}^2$$

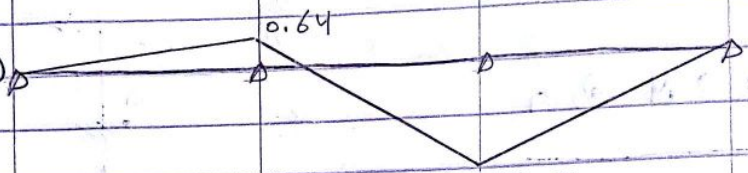
$$M_a - M_d = 0 \text{ من معلوم}$$

$$M_b, M_c \text{ من مجهول}$$



3-M @ b

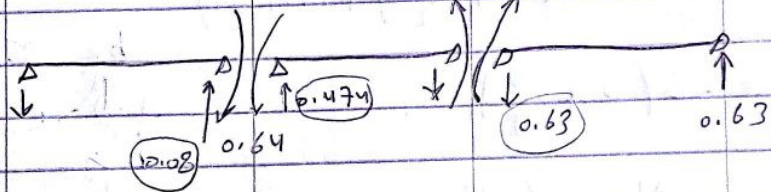
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$$M_a \left(\frac{8}{EI} \right) + 2M_b \left(\frac{8}{EI} + \frac{12}{EI} \right)$$

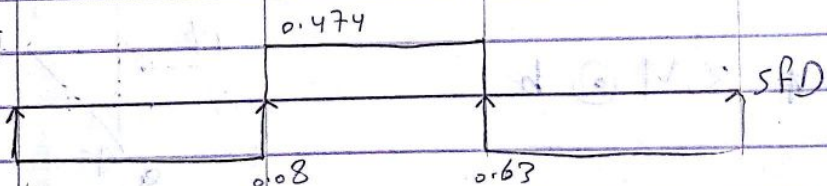
$$+ M_c \left(\frac{12}{2EI} \right)$$

$$= -6 \left(\frac{1-2}{800} + \frac{3-2}{1200} \right)$$



$$28M_b + 6M_c = 25 \times 10^{-3} EI$$

$$28M_b + 6M_c = 12.5 \rightarrow (1)$$



3-M @ c

$$M_b \left(\frac{12}{2EI} \right) + 2M_c \left(\frac{12}{2EI} + \frac{8}{EI} \right)$$

$$+ M_d \left(\frac{8}{EI} \right)$$

$$= -6 \left(\frac{2-3}{1200} + \frac{0-3}{800} \right)$$

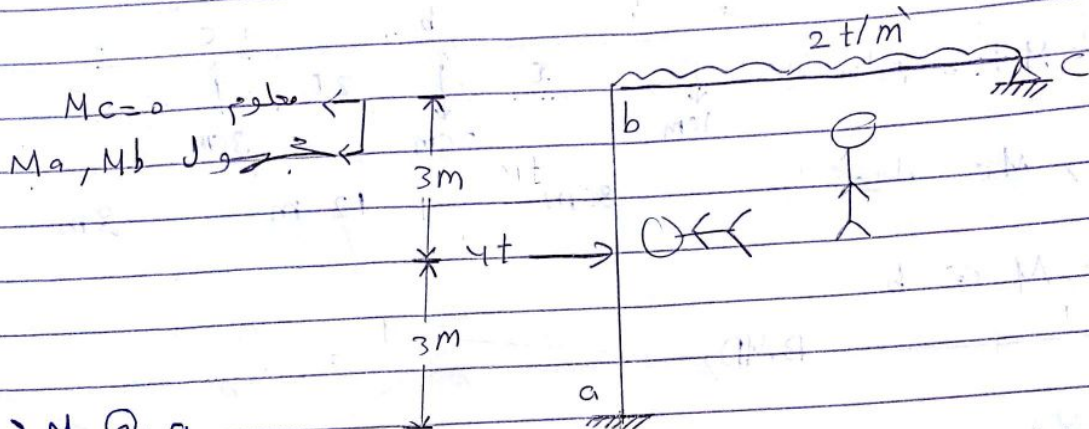
$$6M_b + 28M_c = 137.5$$

$$\rightarrow (2)$$

$$M_b = -0.64$$

$$M_c = 5.05$$

frame II Moment II



3M @ a

$$0 + 2Ma\left(0 + \frac{6}{I}\right) + Mb\left(\frac{6}{I}\right)$$

$$= -6\left(0 + \frac{9}{I}\right)$$

$$\rightarrow 12Ma + 6Mb = -54 \rightarrow (1)$$

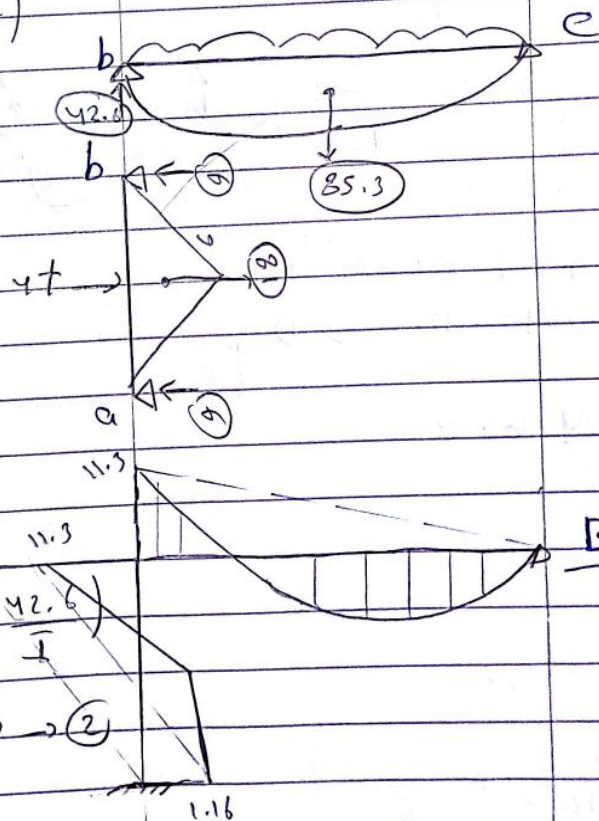
3M @ b

$$Ma\left(\frac{6}{I}\right) + 2Mb\left(\frac{6}{I} + \frac{8}{I}\right)$$

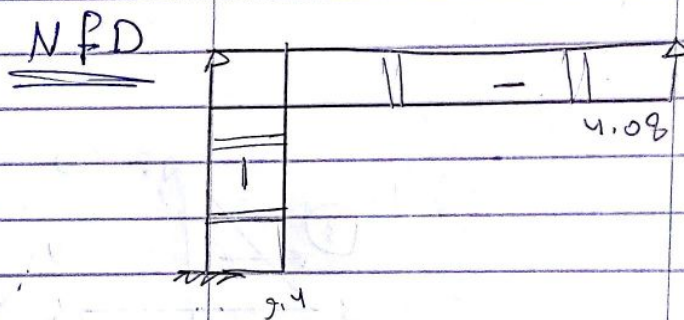
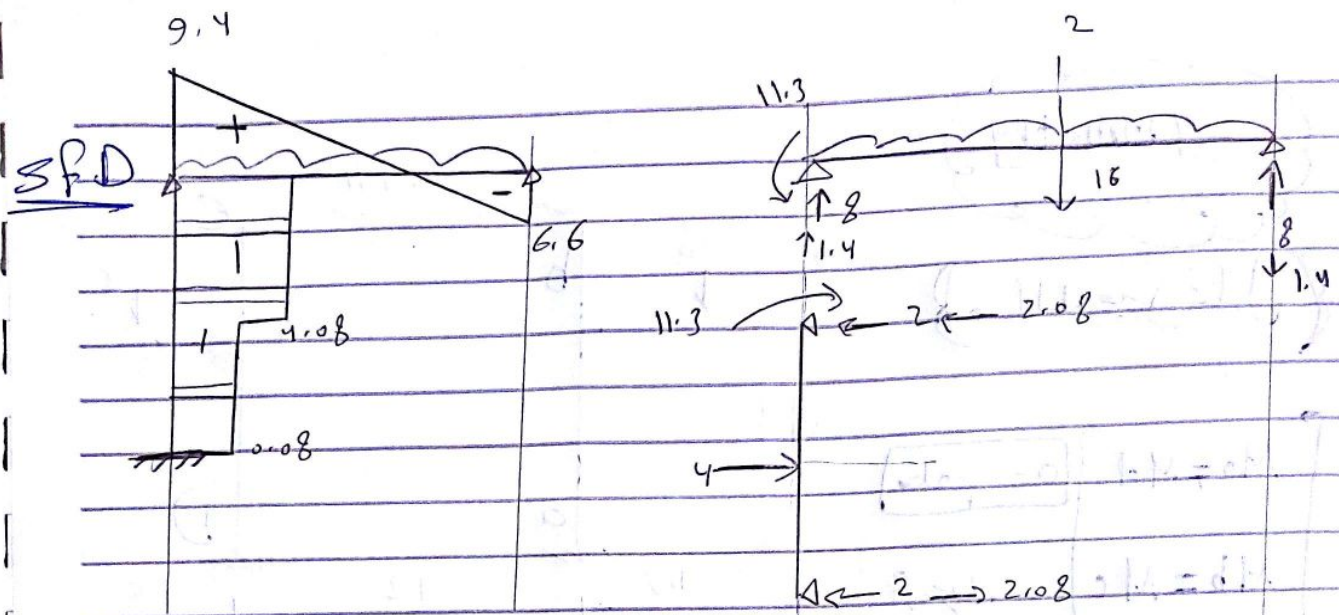
$$+ Mc\left(\frac{8}{I}\right) = -6\left(\frac{9}{I} + \frac{42.6}{I}\right)$$

$$\rightarrow 6Ma + 28Mb = -312 \rightarrow (2)$$

$$Ma = 1.16 \quad Mb = -11.2$$



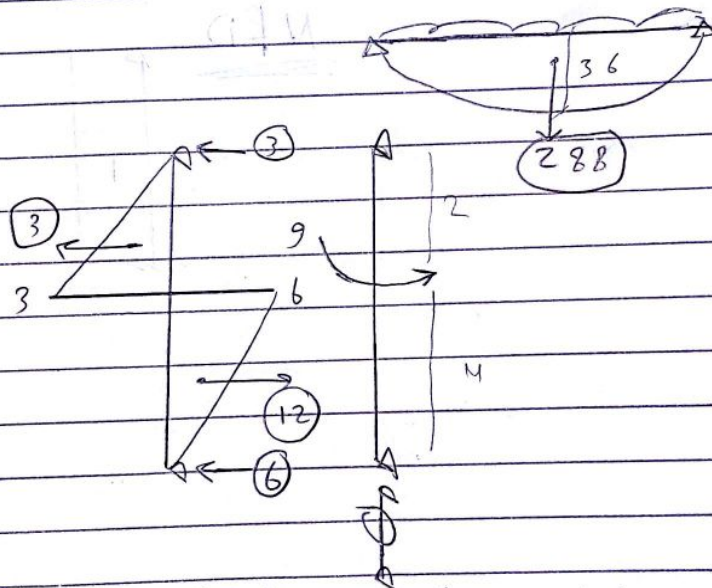
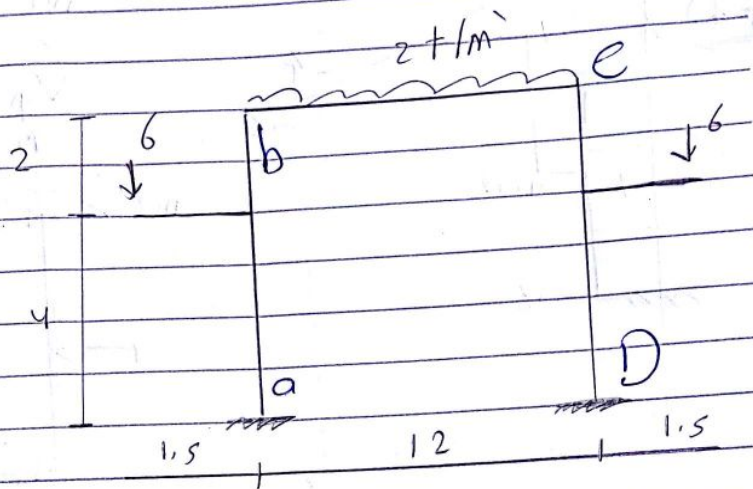
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symmetry

{ J.E. S. a. l. }

$$\begin{cases} M_a = M_d \\ M_b = M_c \end{cases} \begin{cases} 0 = \text{pals} \\ = \text{deg}^2 \end{cases}$$



3M @ a

$$0 + 2M_a \left(0 + \frac{6}{I} \right) + M_b \left(\frac{6}{I} \right) = -6 \left(0 + \frac{6}{I} \right)$$

$$\rightarrow 12M_a + 6M_b = -36 \rightarrow (1)$$

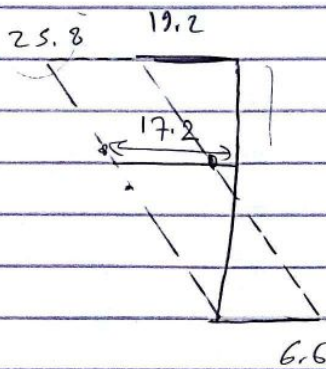
3M @ b

$$M_a \left(\frac{6}{I} \right) + 2M_b \left(\frac{6}{I} + \frac{12}{I} \right) + M_c \left(\frac{12}{I} \right) = -6 \left(\frac{3}{I} + \frac{144}{I} \right)$$

$$\rightarrow 6M_a + 48M_b = -882 \rightarrow (2)$$

$$M_a = 6.6$$

$$M_b = -19.2$$



$$17.2 - 6.6 = 10.6$$

$$13.6 = 3 \leftarrow + 10.6 \rightarrow 6 = 11.6$$

BMD

