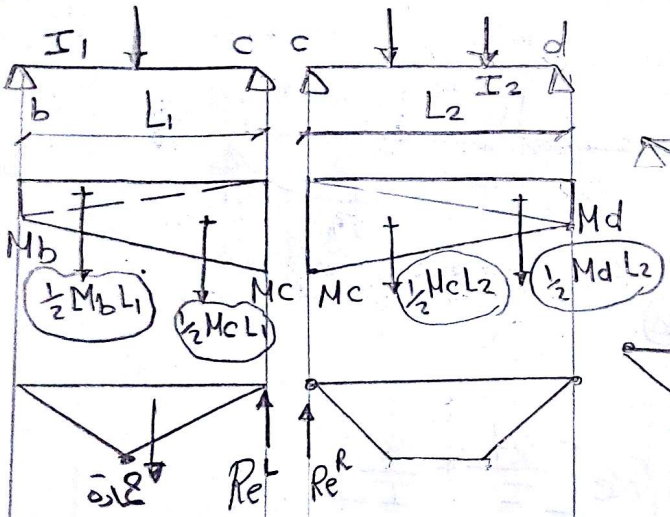
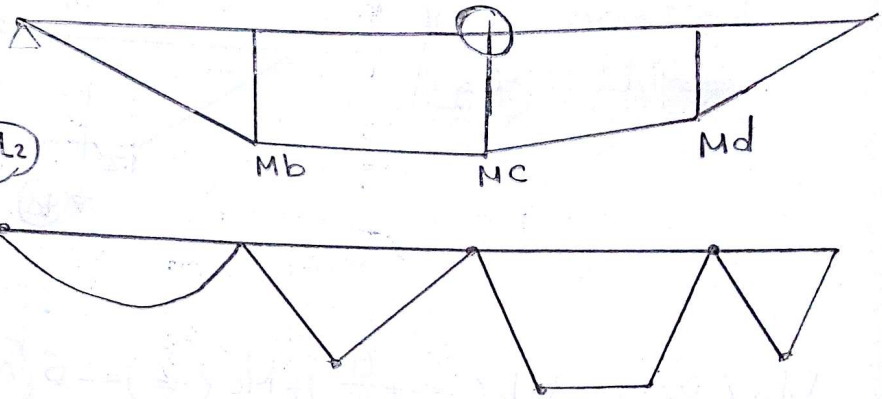
3 Moment equation

Structure
دراسة الإنشاءات

يختفي معادلات عند نقطة c
عندما شرط $\alpha c_L = \alpha c_R$





$$\alpha c\,Left = \left(\frac{2}{3}\frac{Mc\,L_1}{E\,I_1} + \frac{1}{6}\frac{Mb\,L_1}{E\,I_1}\right) * -1 - \frac{Re^L}{EI_1}$$

$$\alpha c\,Right = \frac{1}{3}\frac{Mc\,L_2}{EI_2} + \frac{1}{6}\frac{Mb\,L_2}{6EI_2} + \frac{Re^R}{EI}$$

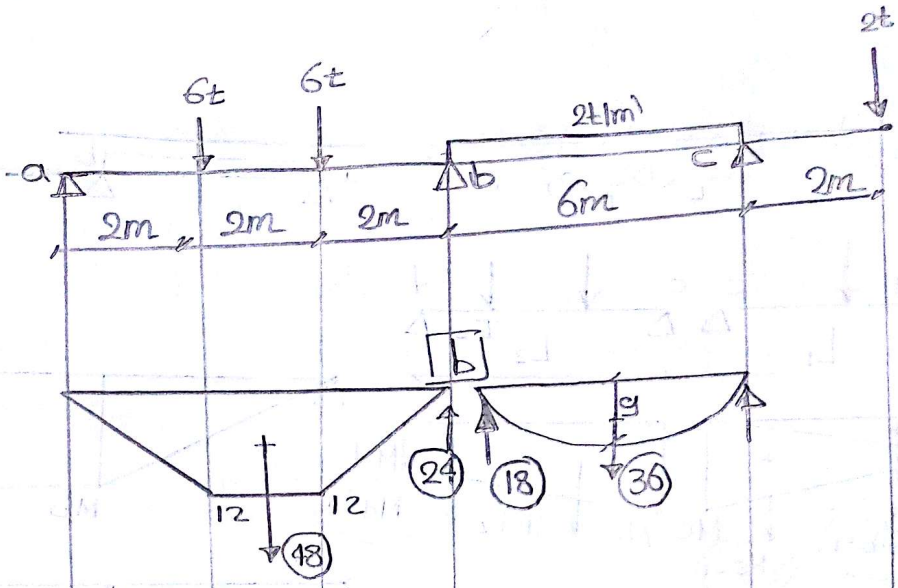
$\frac{2}{6}$

$$Mb\left(\frac{L_1}{EI_1}\right) + 2Mc\left(\frac{L_1}{EI_1} + \frac{L_2}{EI_2}\right) + Md\left(\frac{L_2}{EI_2}\right) = -6\left(\frac{Re^L}{EI_1} + \frac{Re^R}{EI_2}\right)$$

$M_c = -4R$

$M_a = 0$ = معلوم

$M_b = ?? =$ مجهول

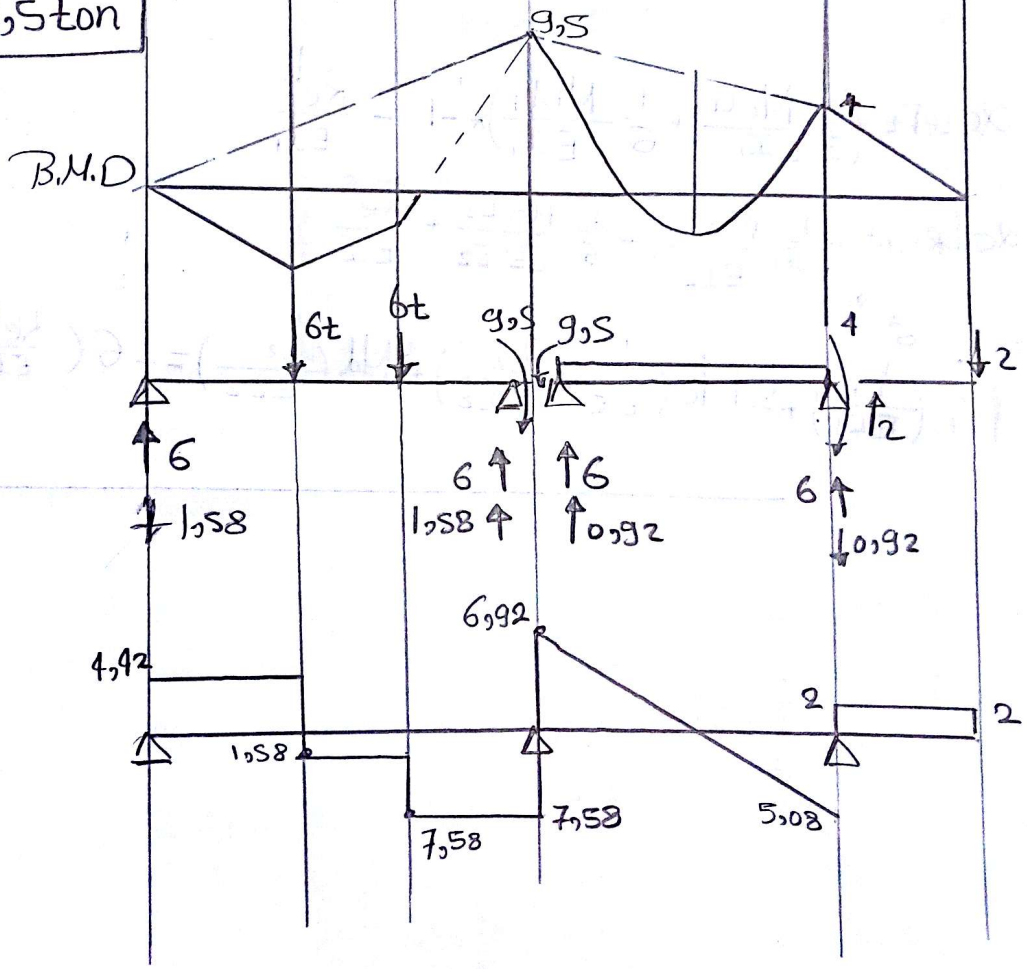


Reaction الـ
يوضح باشارتين

$$M_a\left(\frac{6}{I}\right) + 2M_b\left(\frac{6}{I}+\frac{6}{I}\right) + M_c\left(\frac{6}{I}\right) = -6\left[\frac{24}{I}+\frac{18}{I}\right]$$

-4

$$M_b = -9{,}5 \text{ ton}$$



$M_c = 0$, $M_a, M_b = 0$

3 Moment equation at (a)

$$0 + 2M_a\left(0 + \frac{8}{2I}\right) + \left(\frac{8}{2I}\right)M_b = -6\left(0 + \frac{42{,}66}{2I}\right)$$

$$8M_a + 4M_b = -128$$

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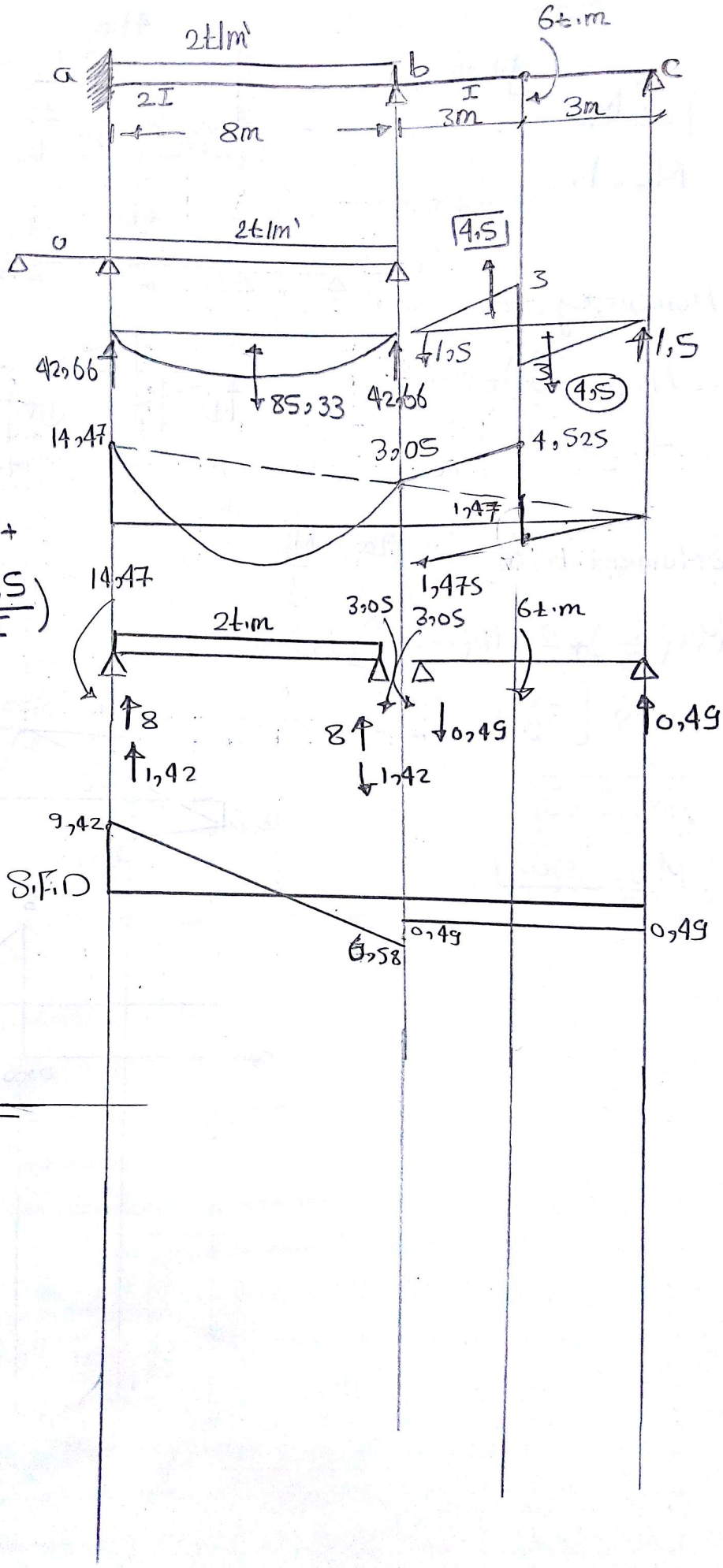
3 Moment at (b)

$$M_a\left(\frac{8}{2I}\right) + 2M_b\left(\frac{8}{2I} + \frac{6}{I}\right) + M_c\left(\frac{6}{I}\right) = -6\left(\frac{42{,}66}{2I} - \frac{1{,}5}{I}\right)$$

$$4M_a + 20M_b = -119 \rightarrow (2)$$

$M_a = -14{,}47$ t.m

$M_b = -3{,}055$ t.m



حسب العمائل

$Ma = Md$

$Mb = Mc$

3 Moment eq at (a)

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

$-6\left[0 + \frac{1}{I}\right]$

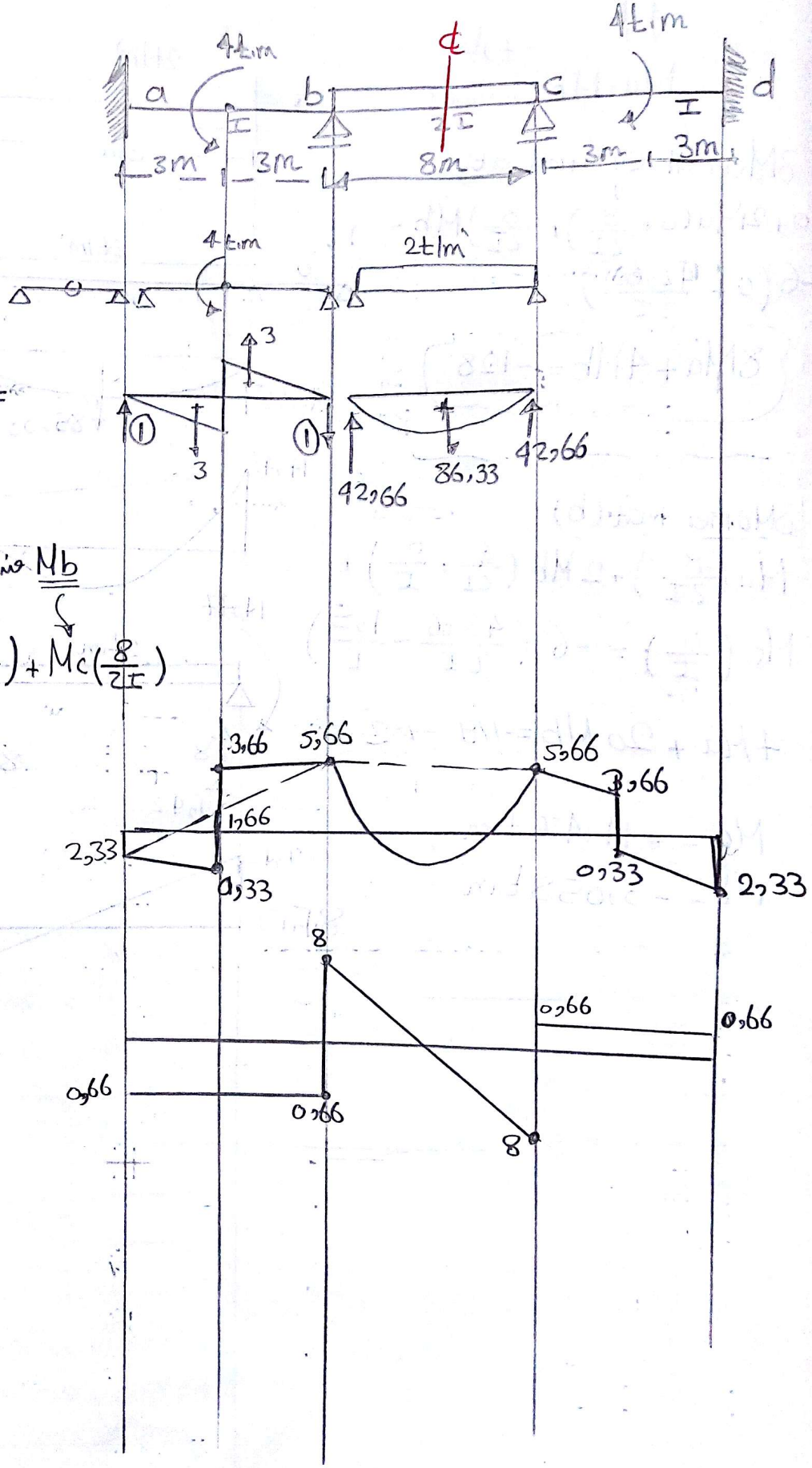
3 Moment a(b) من العمائل Mb

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

$= -6\left[\frac{-1}{I} + \frac{42,66}{2I}\right]$

$\boxed{Ma = 2,33}$

$\boxed{Mb = -5,66}$



$M_a = 0$ = مفصل

$M_c = 0$

$M_b = ??$ = مجهول

3 Moment equation at (b)

$M_a\left(\frac{6}{I}\right) + 2M_b\left(\frac{6}{I} + \frac{8}{I}\right) + M_c\left(\frac{8}{I}\right)$

$= -6\left[\frac{18}{I} + \frac{32}{I}\right]$

$$\boxed{M_b = -9\ t.m}$$