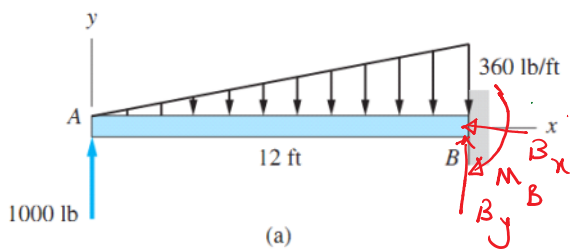
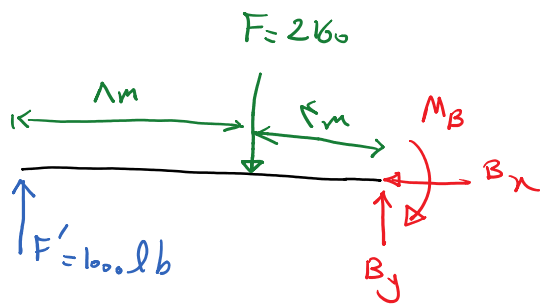
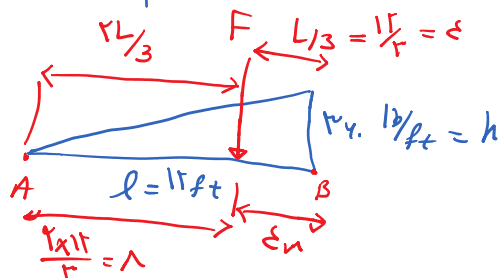


① ی ب بندھنے کے لیے گامی

- بارگتہ دہاڑے تبدیل ہر بار ہندسوں کو



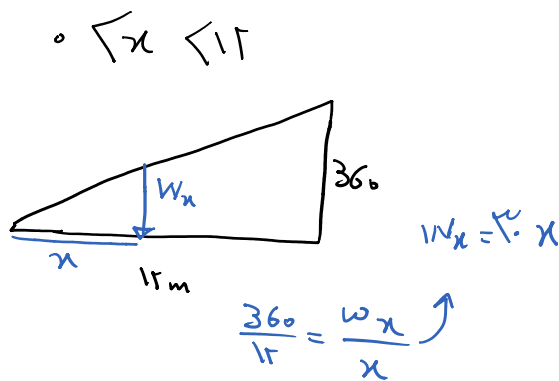
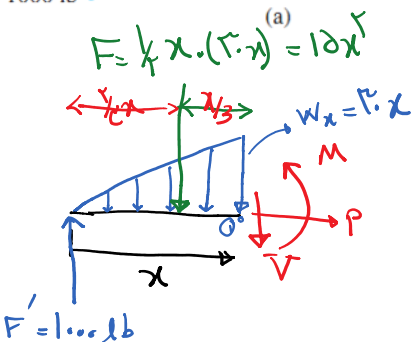
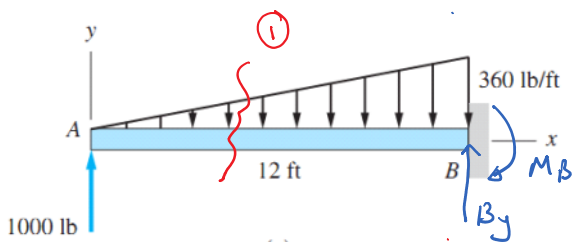
$$F = \frac{1}{2} l \cdot h = \frac{1}{2} \times 12 \times 360 = 2160 \text{ lb}$$



$$\sum F_x = 0 \rightarrow B_x = 0$$

$$\sum M_B = 0 \rightarrow -M_B - F' \cdot 12 + F \cdot \epsilon = 0 \Rightarrow M_B = 1000 \cdot 12 - 2160 \cdot \epsilon = 334 \text{ lb-ft}$$

$$\sum F_y = 0 \rightarrow 1000 - 2160 + B_y = 0 \rightarrow B_y = 2160 - 1000 = 1160 \text{ lb}$$



$$\sum F_x = 0 \rightarrow P = 0$$

$$\sum F_y = 0 \rightarrow 1000 - 10x - V = 0 \rightarrow V = 1000 - 10x$$

$$\sum M = 0 \Rightarrow M + 10x \cdot \frac{x}{2} - 1000x = 0 \rightarrow M = 1000x - \frac{10}{2}x^2$$

$V = 1000 - 18x^2$ $V(0) = 1000 - 18(0) = 1000$

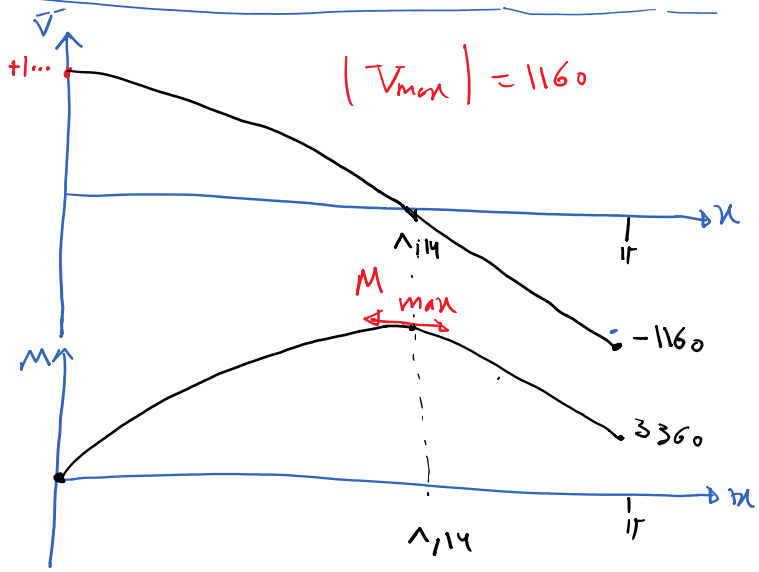
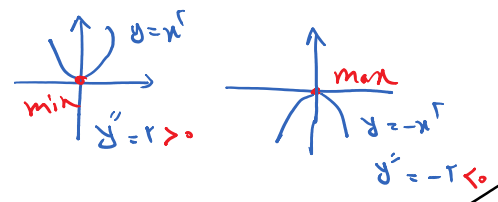
$V=0 \rightarrow 1000 - 18x^2 = 0 \rightarrow x = \sqrt{\frac{1000}{18}} = 1,14$

$V(12) = 1000 - 18(12)^2 = -1160$

$M = 1000x - \frac{18}{3}x^3$

$M' = 1000 - 18x^2 = 0 \rightarrow x = 1,14$ M_{max}

$M'' = -36x = -36 \times 1,14 < 0 \rightarrow M_{max}$



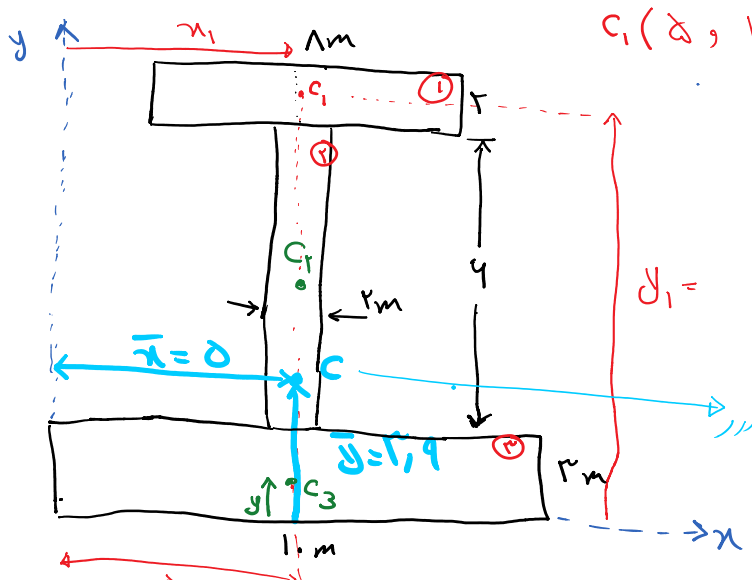
$M(0) = 0$

$M(1,14) = 1000 \times 1,14 - \frac{18}{3} (1,14)^3 = 8428$
 $1140 - 2714$

$M(12) = 1000 \times 12 - \frac{18}{3} (12)^3 = 12000 - 8640 = 3360$



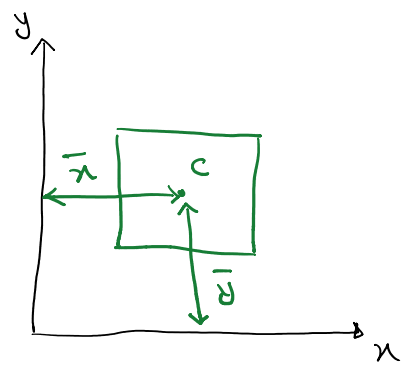
ی ب مرکز سطح اجام:



$C_1(a, 10)$
 $C_2(a, 4)$

مرکز سطح برای شکل مورد نظر

مرکز سطح شکل زیر را بیابید



$C_3(a, 1,5)$
 $C_1(a, 4)$



$c_3(\delta, 1.0)$
 $c_1(\delta, 4)$
 $c_2(\delta, 1.0)$

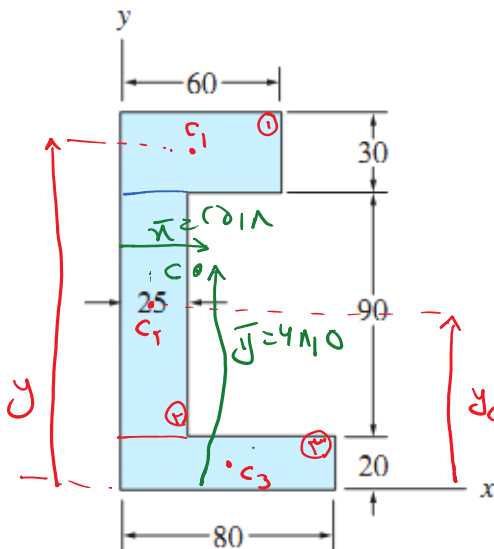
	A	\bar{x}	\bar{y}	$A\bar{x}$	$A\bar{y}$
1	14	δ	1.0	14.0	14.0
2	12	δ	4	12.0	48
3	20	δ	1.0	20.0	20
	ΔA				

$$A_t = A_1 + A_2 + A_3 = 14 + 12 + 20 = \Delta A$$

$$\sum A_i \bar{x}_i = A_1 \bar{x}_1 + A_2 \bar{x}_2 + A_3 \bar{x}_3 = 14.0 + 12.0 + 20.0 = 46.0$$

$$\sum A_i \bar{y}_i = A_1 \bar{y}_1 + A_2 \bar{y}_2 + A_3 \bar{y}_3 = 14.0 + 48 + 20 = 82$$

$$\begin{cases}
 A_t \bar{x} = \sum A_i \bar{x}_i \Rightarrow \Delta A \times \bar{x} = 46.0 \rightarrow \bar{x} = \delta \\
 A_t \bar{y} = \sum A_i \bar{y}_i \rightarrow \Delta A \times \bar{y} = 82 \rightarrow \bar{y} = 4.14
 \end{cases}$$



	A	\bar{x}	\bar{y}	$A\bar{x}$	$A\bar{y}$
1	1800	30	150	54000	270000
2	1200	12.5	40	15000	48000
3	1400	40	10	56000	14000
	$A_t = 4400$			125000	328000

$$y_c = 30 + \frac{40}{2} = 50$$

$$\begin{cases}
 A_t \bar{x} = \sum A_i \bar{x}_i \Rightarrow 4400 \cdot \bar{x} = 125000 \rightarrow \bar{x} = 28.18 \\
 A_t \bar{y} = \sum A_i \bar{y}_i \rightarrow 4400 \cdot \bar{y} = 328000 \rightarrow \bar{y} = 74.54
 \end{cases}$$

$$A_t \bar{y} = \sum A_i \bar{y}_i \rightarrow \int y dA = \int y \lambda ds \rightarrow \bar{y} = \frac{\int y \lambda ds}{A}$$

