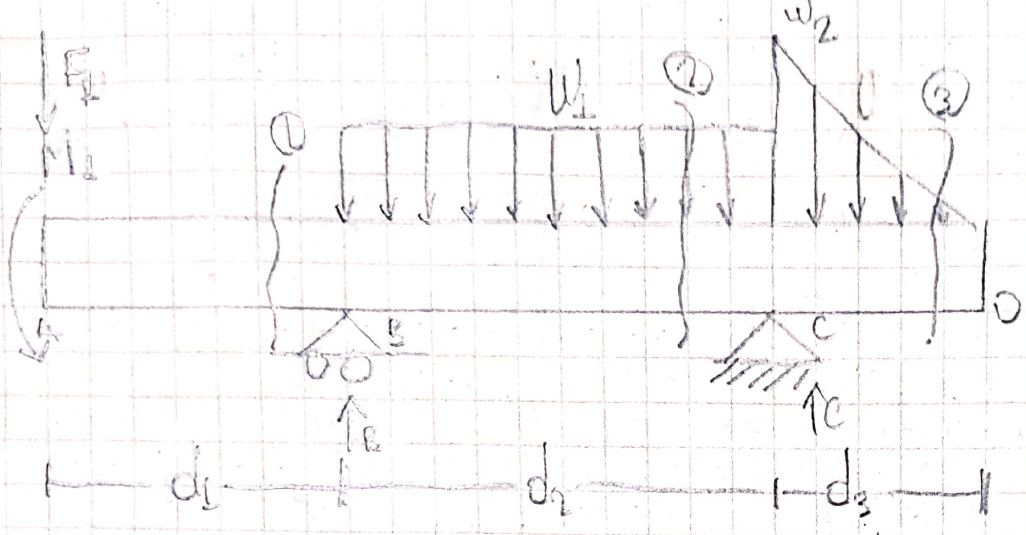


$w_1 \cdot d_2 = F_2 \qquad \frac{w_1 \cdot d_2}{2} = F_3$

$\sum M_B = 0 \; \circlearrowleft^+$

$M_1 + F_1 d_1 - F_2 \cdot \frac{d_2}{2} - F_3 \cdot (d_2 + \frac{1}{3} d_3) + C \cdot d_2 = 0$

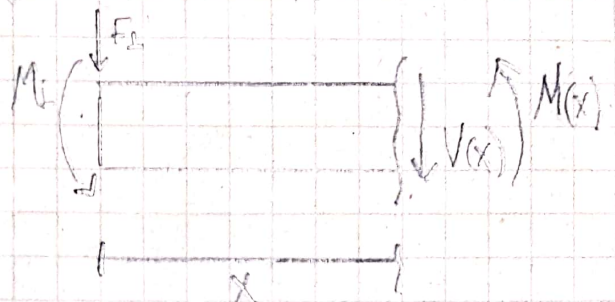
$$C = \frac{-M_1 - F_1 d_1 + F_2 \cdot \frac{d_2}{2} + F_3 (d_2 + \frac{d_3}{3})}{d_2}$$

$\sum F_y = 0 \; \uparrow^+$

$-F_1 + B - F_2 + C - F_3 = 0$

$B = F_1 + F_2 - C + F_3$

Corte ① $0 \leq x \leq d_1$



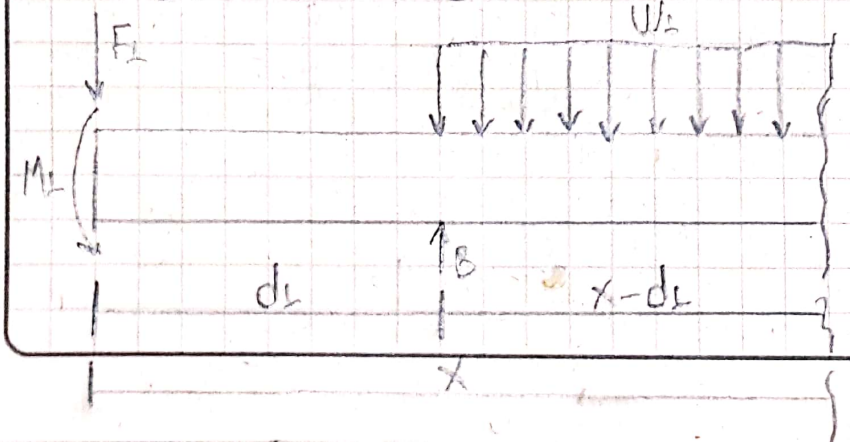
$\sum F_y = 0 \; \uparrow^+$

$-F_1 - V(x) = 0 \Rightarrow V(x) = -F_1$

$\sum M = 0 \; \circlearrowleft^+$

$M_1 + F_1 \cdot x + M(x) \Rightarrow M(x) = -M_1 - F_1 x$

Corte ② $d_1 \leq x \leq d_1 + d_2$

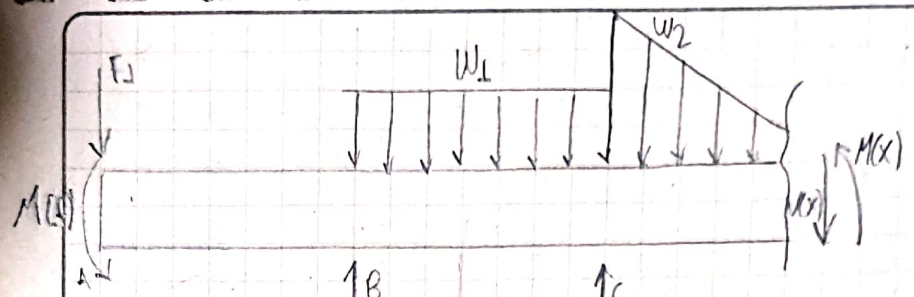


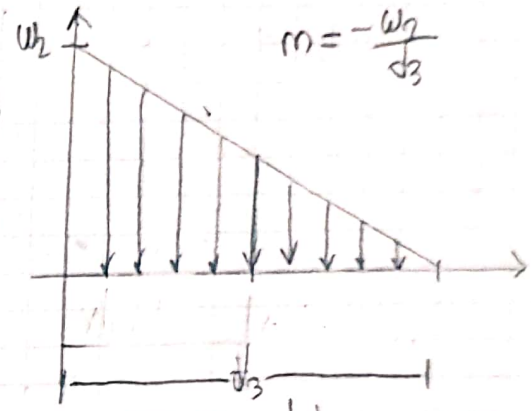
$\sum F_y = 0 \; \uparrow^+ \quad F_1 + B - F_2 - V(x) = 0$

$V(x) = -F_1 + B - w_1 (x - d_1)$

$\sum M = 0 \; \circlearrowleft^+ \quad M_1 + F_1 \cdot x - B \cdot (x - d_1) - w_1 \cdot (x - d_1) \frac{(x - d_1)}{2} + M(x) = 0$

$M(x) = -M_1 - F_1 \cdot x + B (x - d_1) + w_1 \cdot \frac{(x - d_1)^2}{2}$



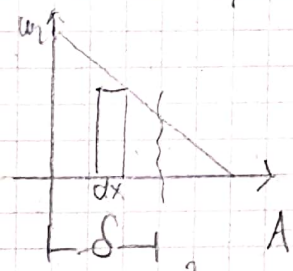


$m = -\frac{w_2}{d_3}$

$y = -\frac{w_2}{d_3}x + b \qquad y = w_2$

$w_2 = -\frac{w_2}{d_3}(0) + b$

$w_2 = b \Rightarrow y = -\frac{w_2}{d_3}x + w_2$ //



$\delta = x - (d_1 + d_2)$

$A = \int dA = \int_0^{\delta} -\frac{w_2 x}{d_3} + w_2\, dx$

$A = F_{eq} = \left[-\frac{w_2 x^2}{2d_3} + w_2 x\right]_0^{\delta}$

$F_{eq} = -\frac{w_2 \delta^2}{2d_3} + w_2\delta$

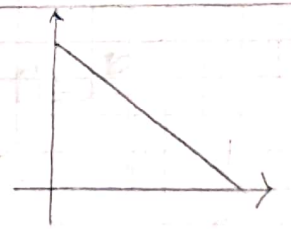
$\sum f_y = 0 \uparrow +$

$-F_1 + B - w_1 d + C - F_{eq} - V(x) = 0$

$V(x) = -F_1 + B - w_1 d + C - F_{eq}$ //

$M_1 + F_1 x - B(x-d_1) + w_1 d_2 (x-(d_1+\frac{d_2}{2})) - C\cdot(x-(d_1+d_2)) + F_{eq}(x-(d_1+d_2+\bar{x})) + M(x)$

$M(x) = -M_1 + F_1 x + B(x-d_1) - w_1 d_2 (x-(d_1+\frac{d_2}{2})) + C\cdot(x-(d_1+d_2)) - F_{eq}(x-(d_1+d_2+\bar{x}))$



$\bar{X} = \frac{\int \tilde{x}\, dA}{\int dA} \qquad \tilde{x} = x$

$\int_0^{\delta} x y\, dx = 0$

$\int_0^{\delta} x\left(-\frac{w_2}{d_3}x + w_2\right) dx = 0$

$-\frac{w_2}{3d_3}x^3 + \frac{w_2 x^2}{2}\Big|_0^{\delta} = -\frac{w_2\delta^3}{3d_3} + \frac{w_2\delta^2}{2}$

$\bar{x} = \frac{-\frac{w_2\delta^3}{3d_3} + \frac{w_2\delta^2}{2}}{-\frac{w_2\delta^2}{2d_3} + w_2\delta} = \frac{w_2\delta^2\left(\frac{-\delta}{3d_3} + \frac{1}{2}\right)}{w_2\delta\left(\frac{-\delta}{2d_3} + 1\right)} = \frac{\delta\left(\frac{1}{2} - \frac{\delta}{3d_3}\right)}{1 - \frac{\delta}{2d_3}}$

BOGOTÁ
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