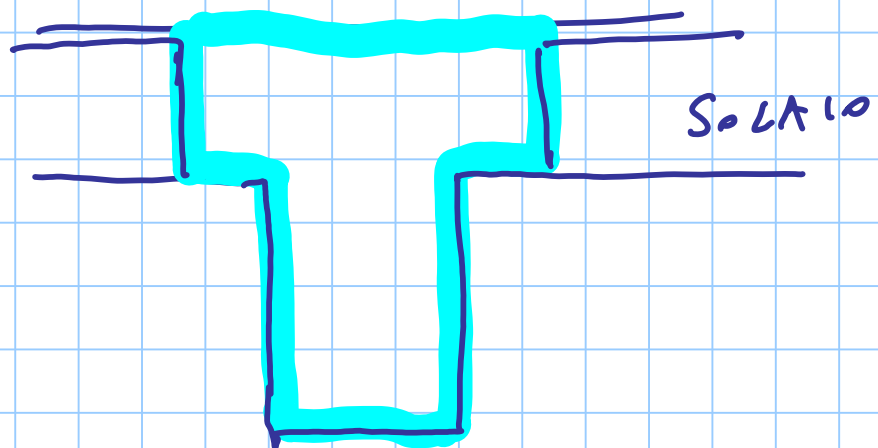


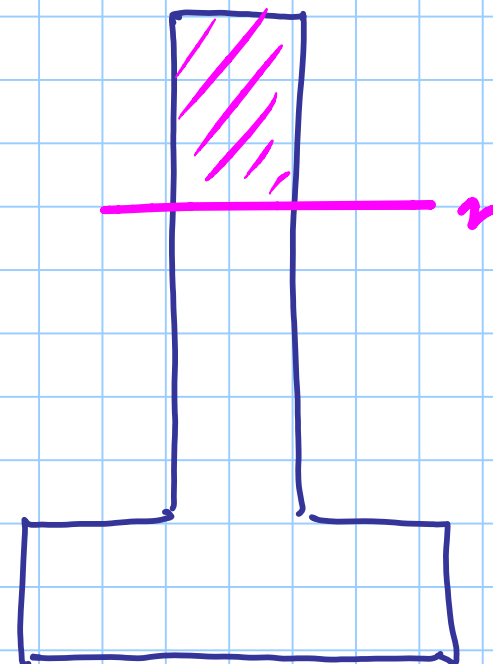
TRAVE DI FONDAZIONE

02/04/2014

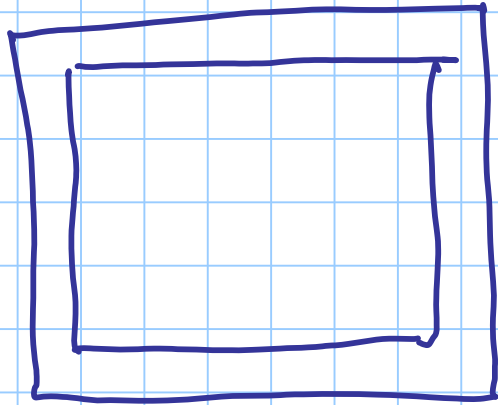
Titolo nota



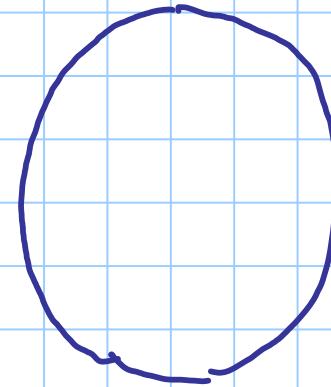
sezione a T



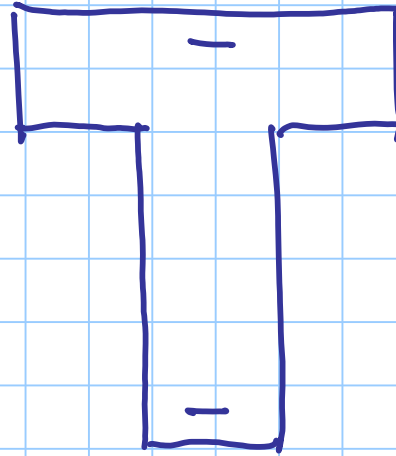
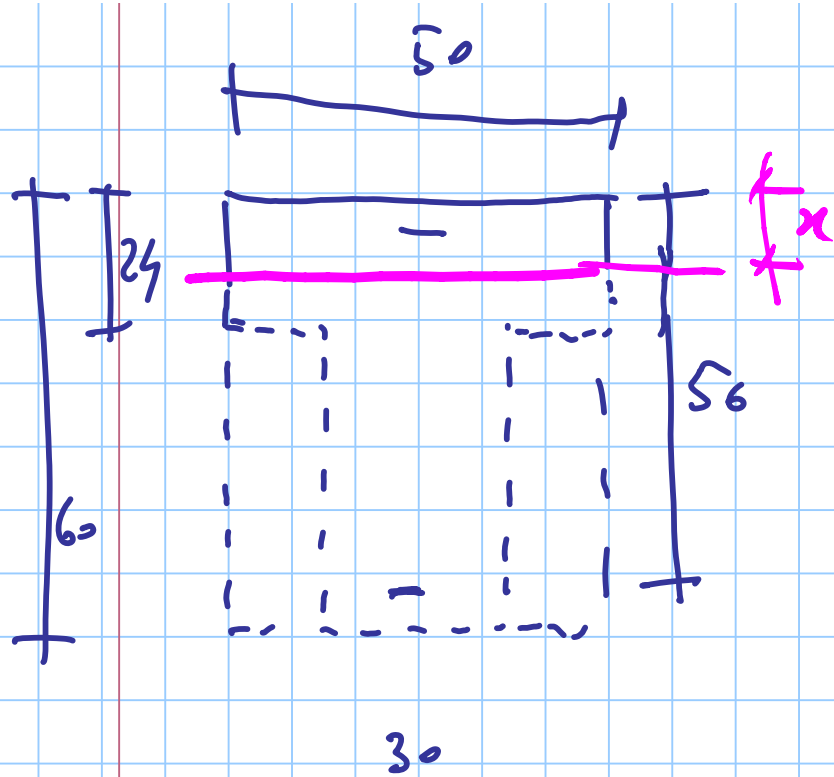
sezione a T inversa

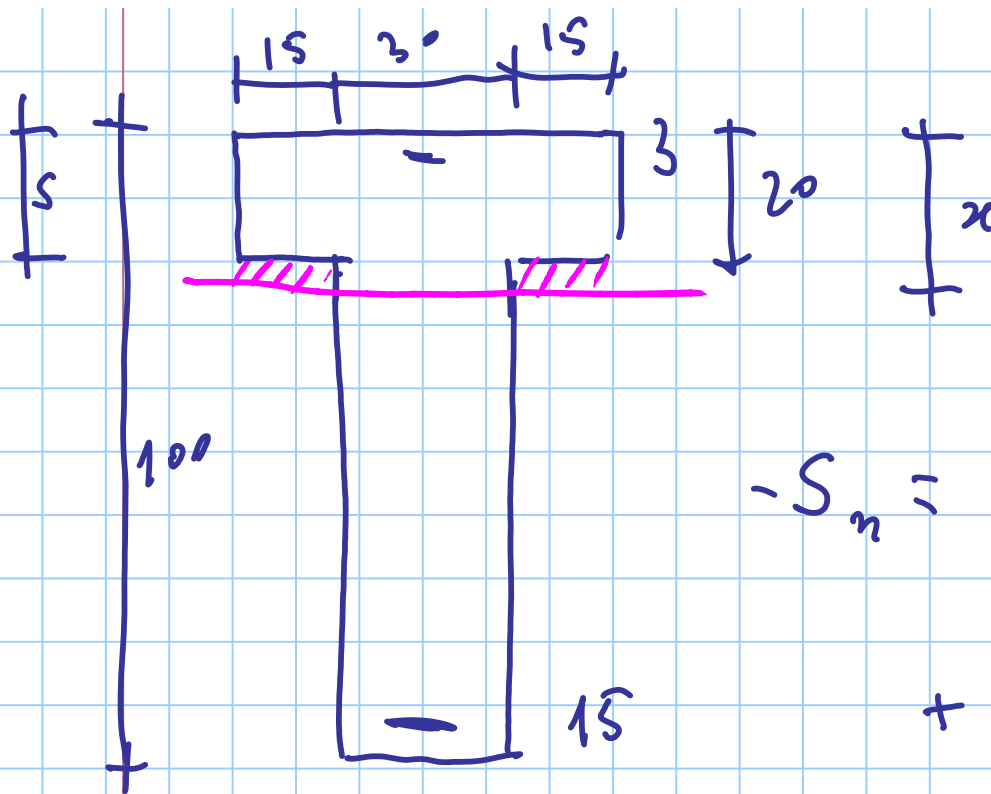


rectangle

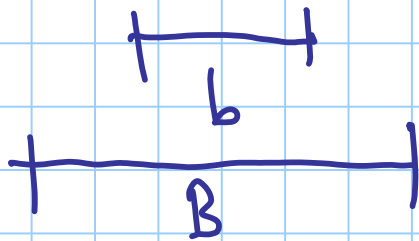


PALJ



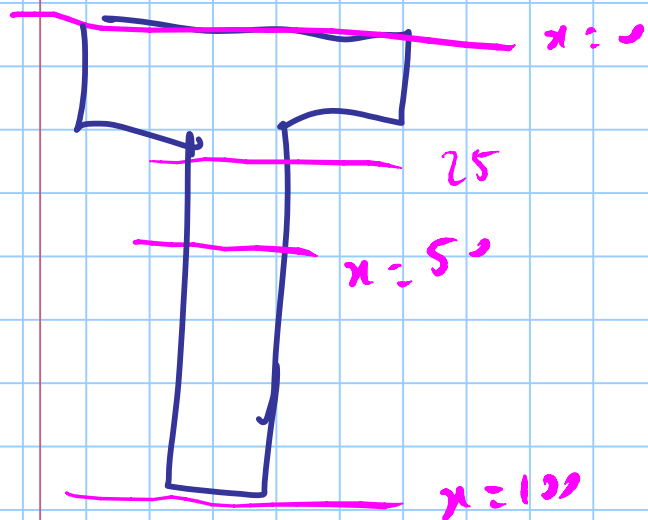


$$-S_n = \frac{Bx^2}{2} - \frac{(B-b)(x-s)^2}{2} + n A'_s (x-c) - n A_s (d-x) = 0$$



$$I_n = \frac{Bx^3}{3} - \frac{(B-b)(x-s)^3}{3} + n A'_s (x-c)^2 + n A_s (d-x)^2$$

met. b. Ad dimenzioni

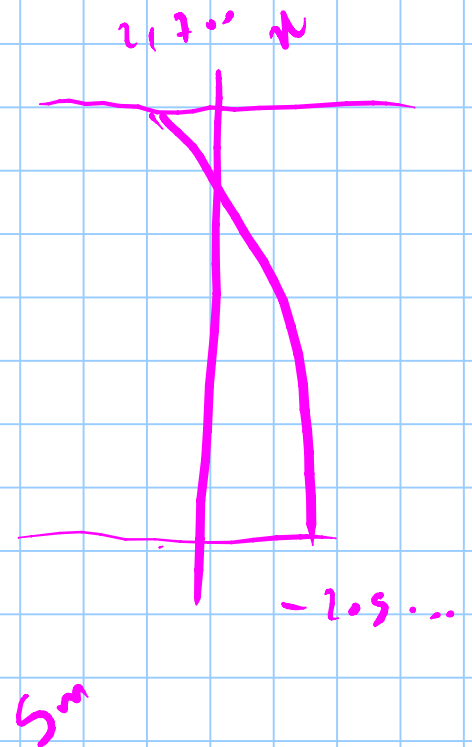


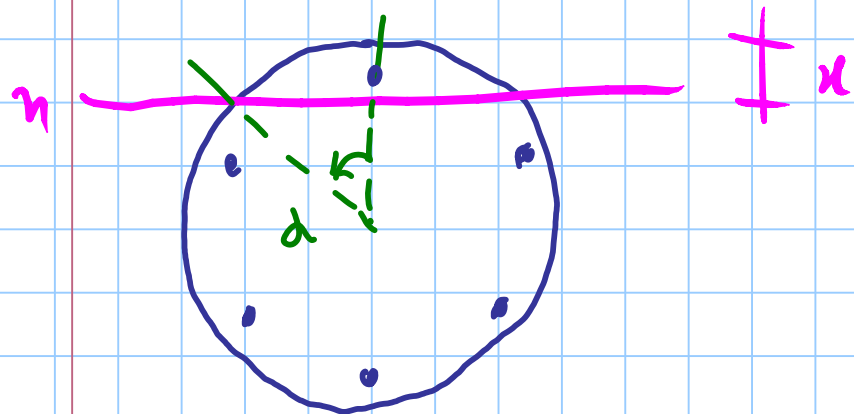
$$S_n = 21780$$

$$-3345$$

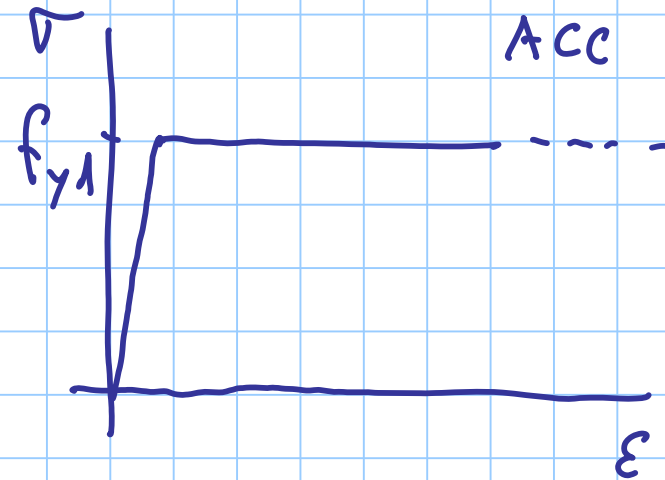
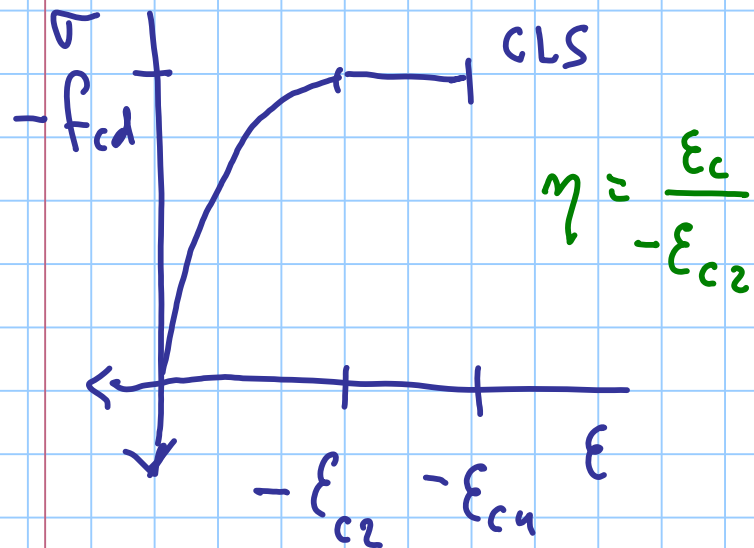
$$S_n = -53220$$

$$S_n = -209220$$





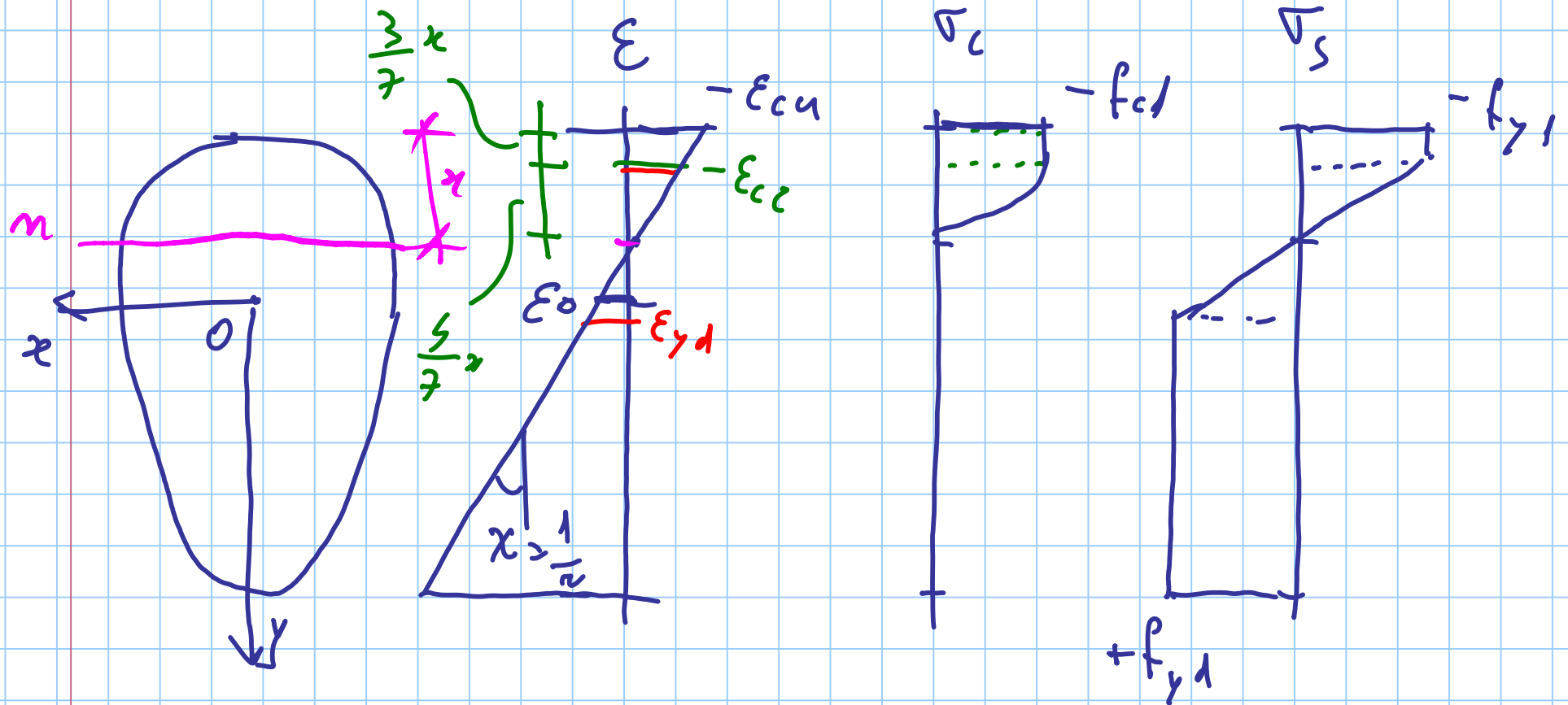
3° MODELLO DI COMPORTAMENTO



$$\epsilon_{c2} = 2 \times 10^{-3}$$

$$\epsilon_{cu} = 3,5 \times 10^{-3}$$

$$\sigma_c = -\eta(2-\eta)f_{cd}$$



$$\epsilon_c = \epsilon_0 + \chi y$$

$$\sigma = -\eta(2-\eta)f_{cd} =$$

$$= + \frac{\epsilon_c}{\epsilon_{c2}} \left(2 + \frac{\epsilon_c}{\epsilon_{c2}} \right) f_{cd}$$

$$\sigma = \frac{\epsilon_0 + \chi y}{\epsilon_{c2}} \left(2 + \frac{\epsilon_0 + \chi y}{\epsilon_{c2}} \right) f_{ca} :$$

$$= \left(\frac{\epsilon_0}{\epsilon_{c2}} + \frac{\chi}{\epsilon_{c2}} y \right) \left(2 + \frac{\epsilon_0}{\epsilon_{c2}} + \frac{\chi}{\epsilon_{c2}} y \right) f_{ca} :$$

$$= f_{ca} \left\{ \frac{\epsilon_0}{\epsilon_{c2}} \left(2 + \frac{\epsilon_0}{\epsilon_{c2}} \right) + \underbrace{\left[\frac{\chi}{\epsilon_{c2}} \left(2 + \frac{\epsilon_0}{\epsilon_{c2}} \right) + \frac{\chi}{\epsilon_{c2}} \frac{\epsilon_0}{\epsilon_{c2}} \right]}_{2 \frac{\chi}{\epsilon_{c2}} \left(1 + \frac{\epsilon_0}{\epsilon_{c2}} \right)} y + \frac{\chi^2}{\epsilon_{c2}^2} y^2 \right\}$$

$$\sigma_c = -f_{cd} (t_0 + t_1 y + t_2 y^2)$$

$$\varepsilon_0 = -\varepsilon_{c2}$$

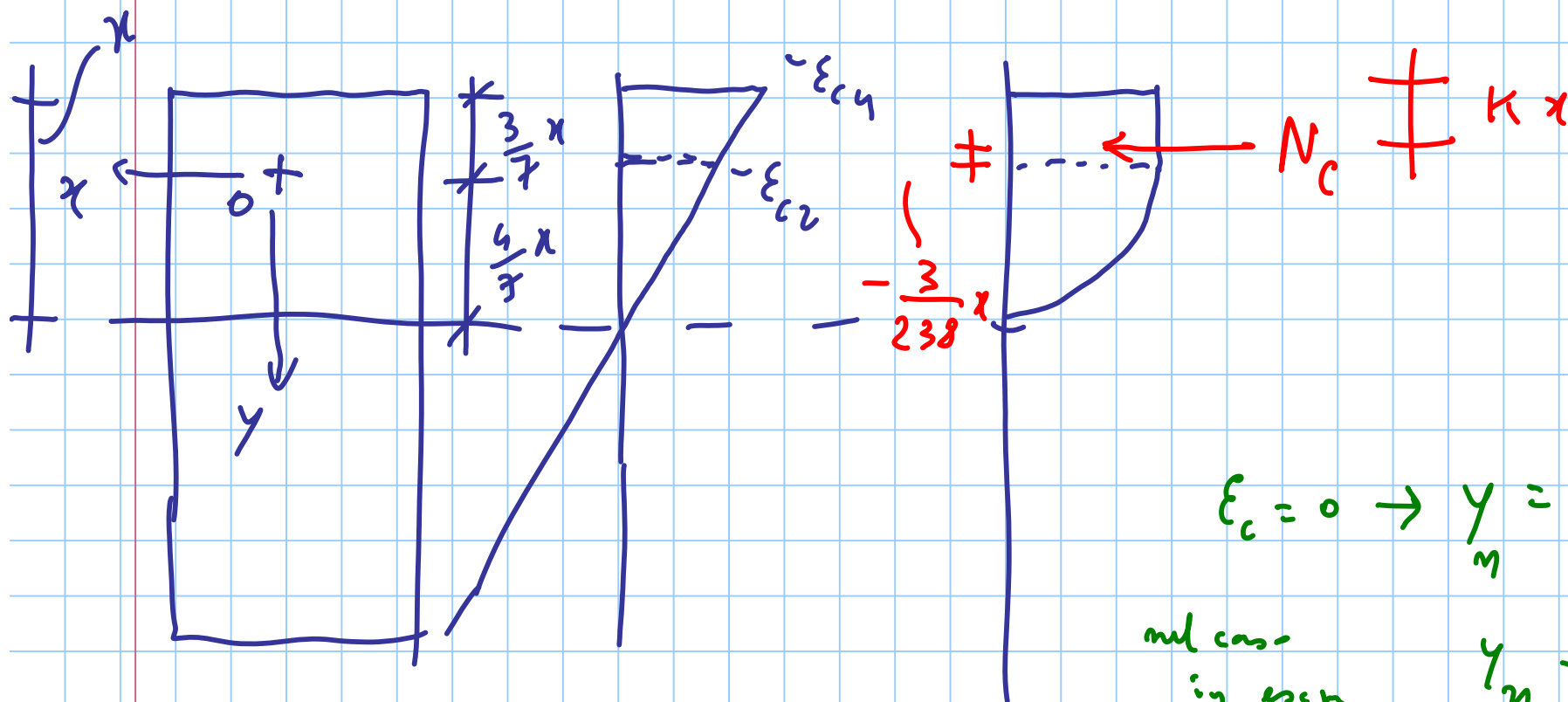
$$x = \frac{\varepsilon_{c2}}{\frac{4}{7} \kappa}$$

$$t_0 = -\frac{\varepsilon_0}{\varepsilon_{c2}} \left(2 + \frac{\varepsilon_0}{\varepsilon_{c2}} \right) = 1$$

$$N = \int \sigma b dy$$

$$t_1 = -2 \frac{x}{\varepsilon_{c2}} \left(1 + \frac{\varepsilon_0}{\varepsilon_{c2}} \right) = 0$$

$$t_2 = -\frac{x^2}{\varepsilon_{c2}^2} = -\frac{49}{16 x^2}$$



$$\epsilon_c = 0 \rightarrow y_n = -\frac{\epsilon_0}{x}$$

mid case
in even

$$y_n = \frac{4}{7}x$$

$$\epsilon_0 = -\epsilon_{c2}$$

$$x = \frac{\epsilon_{c2}}{4/7 x}$$

$$\epsilon_c = \epsilon_0 + x y$$

$$y_{c2} = \frac{-\epsilon_{c2} - \epsilon_0}{x}$$

$$\epsilon_c = -\epsilon_{c2}$$

$$y_{c2} = 0$$

$$N = \int \sigma dA = -f_{cd} \int_{y_{c2}}^{y_1} (t_0 + \cancel{t_1 y} + t_2 y^2) b dy - f_{cd} \int_{y_{c1}}^{y_{c2}} b dy$$

$dA = b dy$

$-\frac{49}{16x^2}$

$$N = -f_{cd} b \left[y - \frac{49}{16x^2} \frac{y^3}{3} \right]_0^{\frac{4}{7}x} - f_{cd} b \left[y \right]_{-\frac{3}{7}x}^0 =$$

$$-f_{cd} b \left[\frac{4}{7}x - \frac{49}{16x^2} \frac{1}{3} \left(\frac{4}{7}x \right)^3 + \frac{3}{7}x \right]$$

$$N = -b f_{cd} \left[x - \frac{4}{21} x \right] = - \underbrace{\frac{17}{21}}_{0.810} b x f_{cd}$$

$$N_c = -f_{cd} \beta A_c$$

\uparrow 0.81 coefficiente di riempimento

$$M = \int \sigma_y dA = \frac{1}{98} b x^2 f_{cd}$$

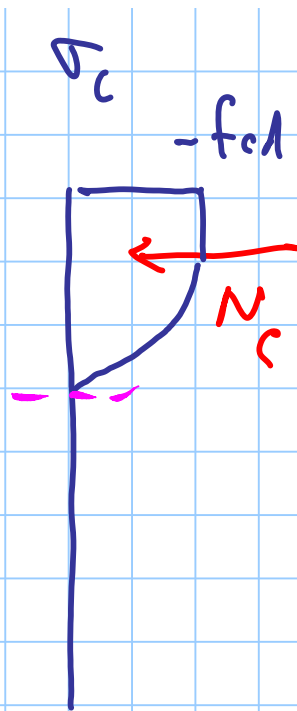
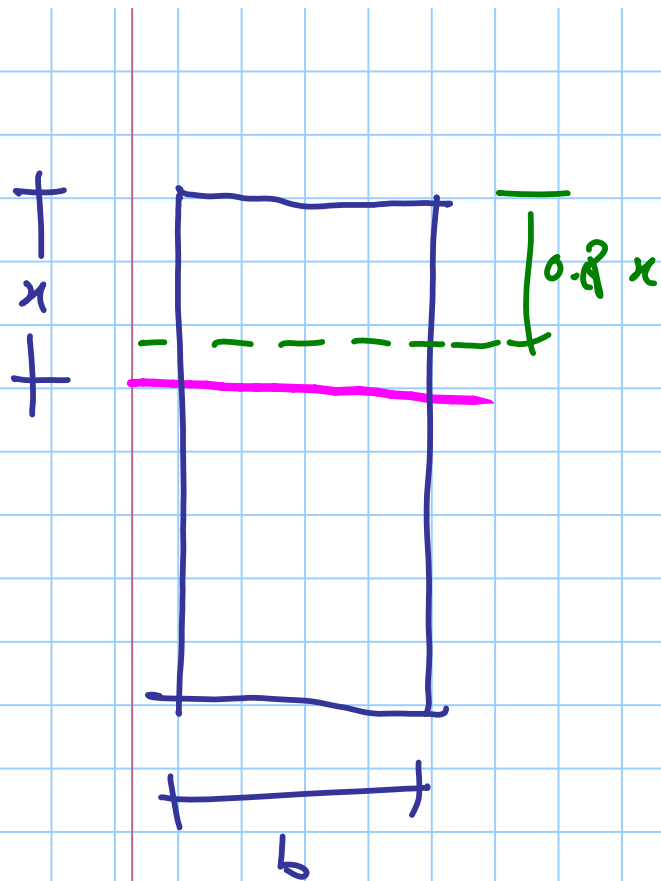
$$\frac{M}{N} = \frac{\frac{1}{98} \cancel{bx} \cancel{f_{x1}}}{-\frac{17}{21} \cancel{bx} \cancel{f_{x1}}} = -\frac{3}{17 \times 14} x = -\frac{3}{238} x$$

$$\frac{3}{7} x - \frac{3}{238} x = \frac{99}{238} x \approx 0.416 x$$

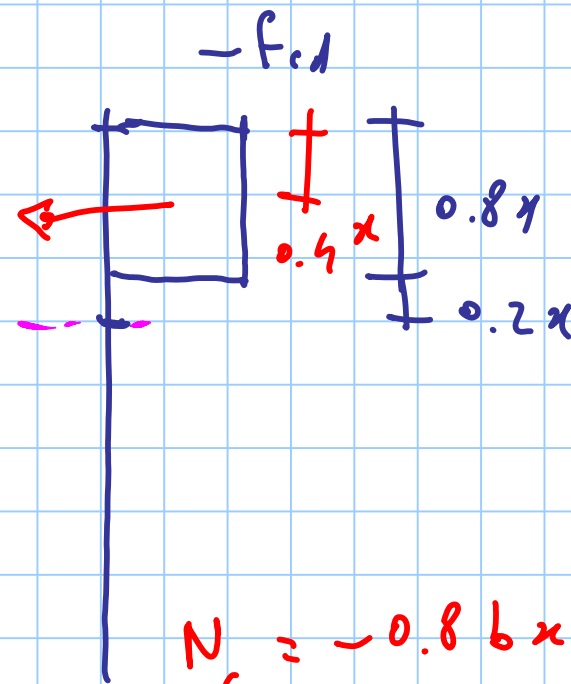
$$K x$$

↑

$$0.416$$



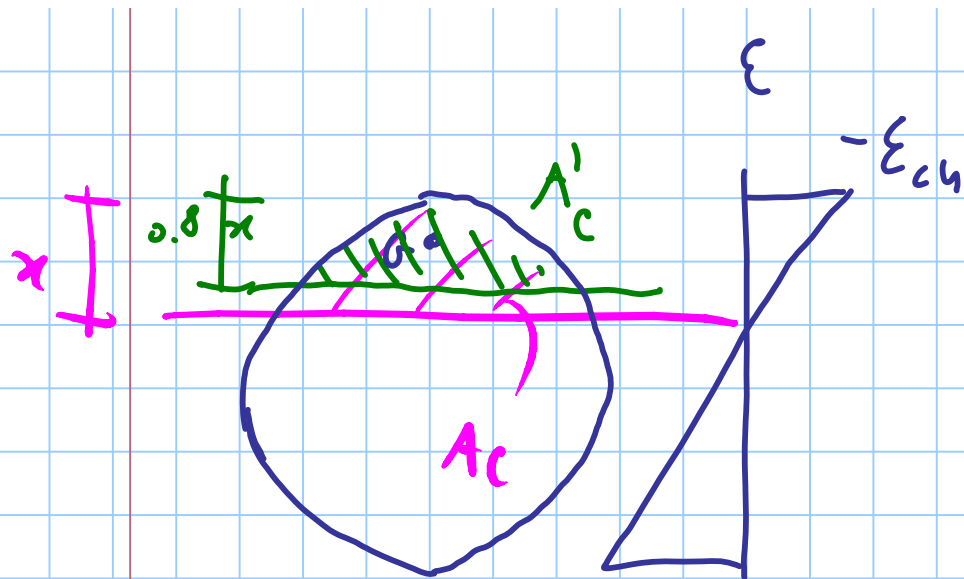
$$\frac{0.416}{kx}$$



$$N_c = -0.8bx f_{cd}$$

$$N_c = -\beta bx f_{cd}$$

|
0.81



A diagram of a rectangular stress block. The height of the block is indicated by a green bracket, labeled β . The stress is labeled σ_c and the concrete strength is labeled $-f_{cd}$. The resultant force is indicated by a blue arrow pointing to the left, labeled $N_c = -A'_c f_{cd}$.

coeff. of reinforcement $\geq \frac{A'_c}{A_c}$

— area in vert. (green)
— area in tot. (pink)