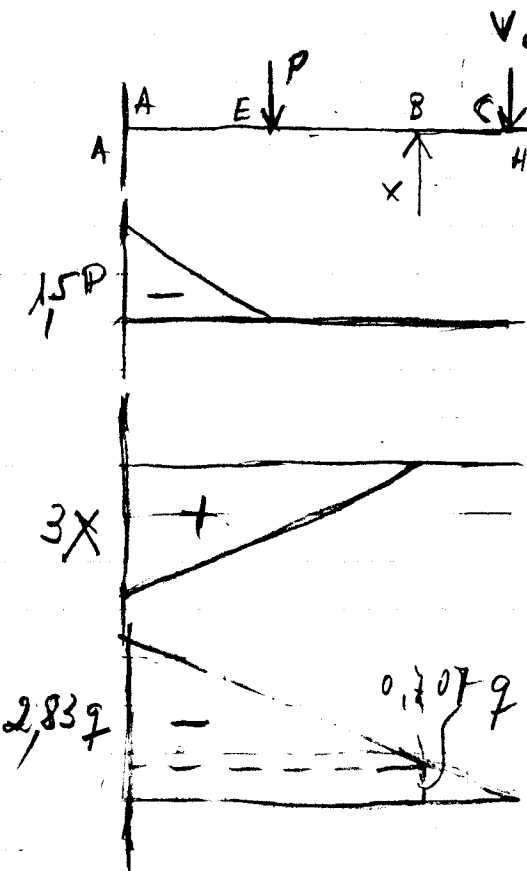


Examen de Resistencia de Materiales 2º trimestre del 8-2-02



$$H_A = H_C = q \frac{\sqrt{2}}{2} 2 = q \sqrt{2} = 28,28$$

2º Terr. de Mohr  $V_D = V_C = q \frac{\sqrt{2}}{2} 2 \times 0,5 = 14,14 \text{ kN}$

$$-\frac{1}{2} 1,5P \times 1,5 \left( \frac{2}{3} 1,5 + 1,5 \right) = -140,63$$

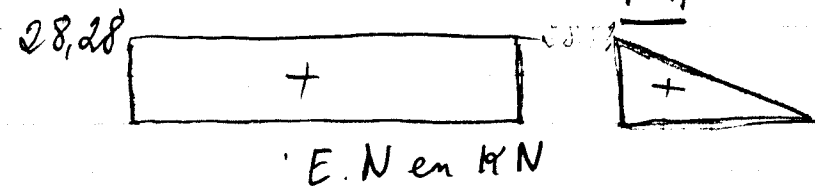
$$+\frac{1}{2} 3 \times 3 \times \frac{2}{3} 3 = 9X$$

$$-\frac{1}{2} 2,127q \cdot 3 \times \frac{2}{3} 3 - 0,707q \cdot 3 \cdot 1,5 = -191,01$$

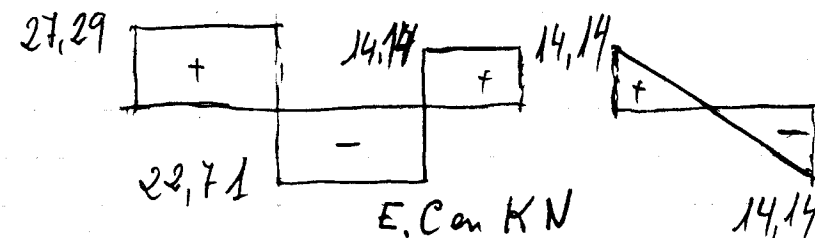
$$X = 36,85 \text{ kN}$$

$$V_A = 50 + 14,14 - 36,85 = 27,29 \text{ kN}$$

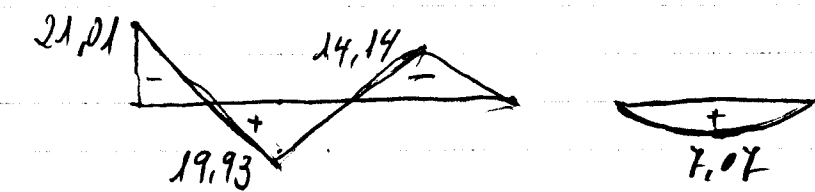
$$M_A = -14,14 \times 4 - 50 \times 1,5 + 36,85 \times 3 = -21,01$$



E. N en kN



E. C en kN



M.F. en kN.m.

$$M_E = -21,01 + 27,29 \times 1,5 = 19,93$$

$$M_r = \frac{q \frac{\sqrt{2}}{2} 2^2}{8} = 7,07 \text{ kN.m}$$

Tramo AC:  $\psi = \frac{21,01 \times 10^3}{170 \times 10^6} 10^{-6}$

$\psi > 123,6 \text{ cm}^3$  I.P.E - 180

$$\frac{21,01 \times 10^3}{146 \times 10^{-6}} + \frac{28,28 \times 10^3}{23,9 \times 10^{-4}} < \sigma_{ac}$$

Tramo CD:  $\psi = \frac{7,07}{170} 10^3 = 41,58$

IPE - 120;  $\frac{7,07}{53} 10^3 + \frac{28,28}{13,2} 10 < 170$