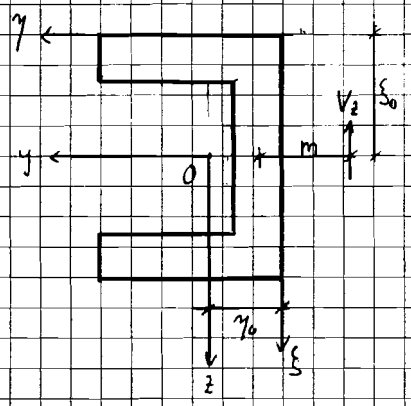
Baustatik I + II Lösung der Semesterprüfung

Frühjahr 05

1) $w_F = \frac{Ql}{EA} + \frac{2Ql^3}{3EI}$

2a)



$\eta_0 = 234\,mm$

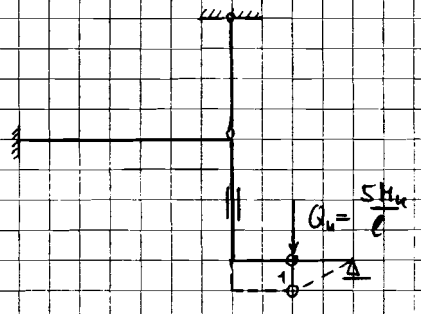
$\xi_0 = 400\,mm$

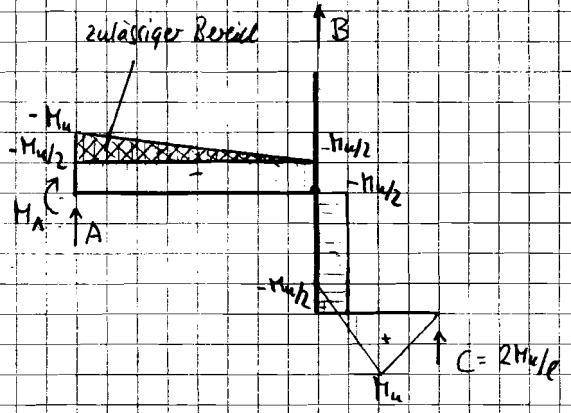
b) $I_y = 20.9125 \cdot 10^9\,mm^4$

$I_z = 8.2208 \cdot 10^9\,mm^4$

c) $m = 208\,mm$

3) $Q_u = \frac{5M_u}{l}$





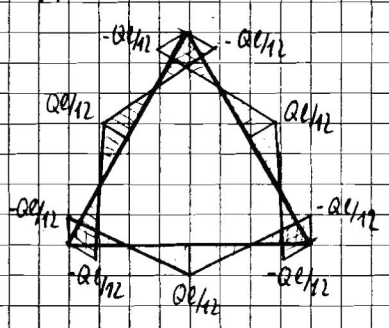
Grenzen: $-M_u \le M_A \le -M_u/2$

$\Rightarrow 0 \le A \le M_u/4l$

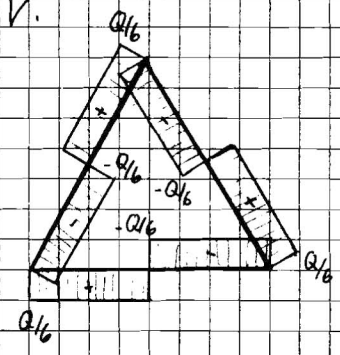
$\Rightarrow 3M_u/l \ge B \ge 11M_u/4l$

4) $A_v = A_h = B = 0$

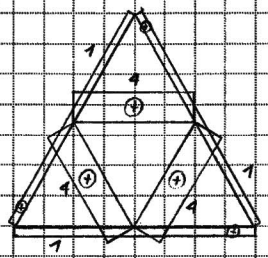
M:



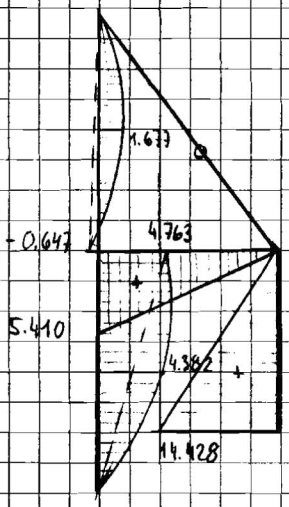
V:



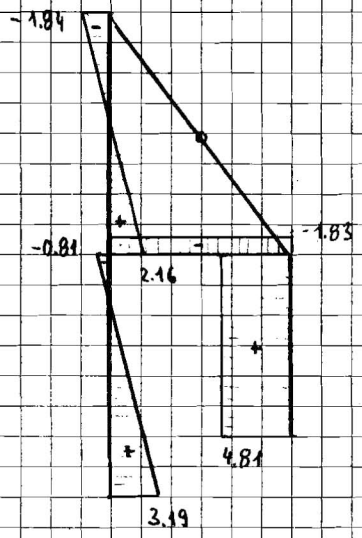
N:



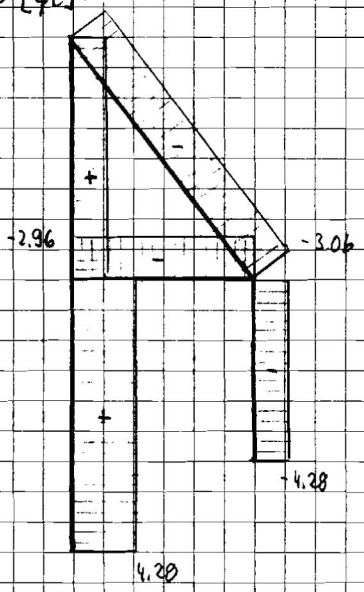
5) M [$q\ell^2$]:



V [$q\ell$]:



N [$q\ell$]:



6) $w = \frac{Q\ell^3}{3EI}\left(1 - \frac{GK}{2GK+3EI}\right) = \frac{4\,Q\ell^3}{15\,EI}$