

1a) $w = \frac{QL^3}{48EI}$

1b) $w = \frac{5ql^4}{384EI}$

1c) $w = \frac{QL^3}{3EI}$

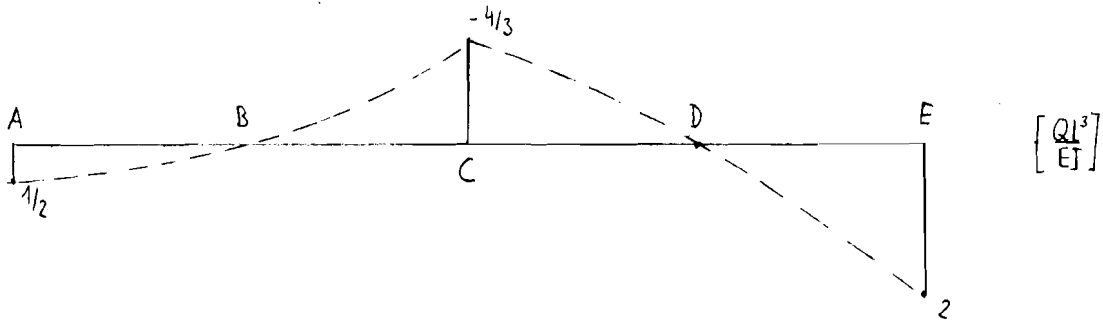
2) $w_A = \frac{QL^3}{2EI}$

$w_B = 0$

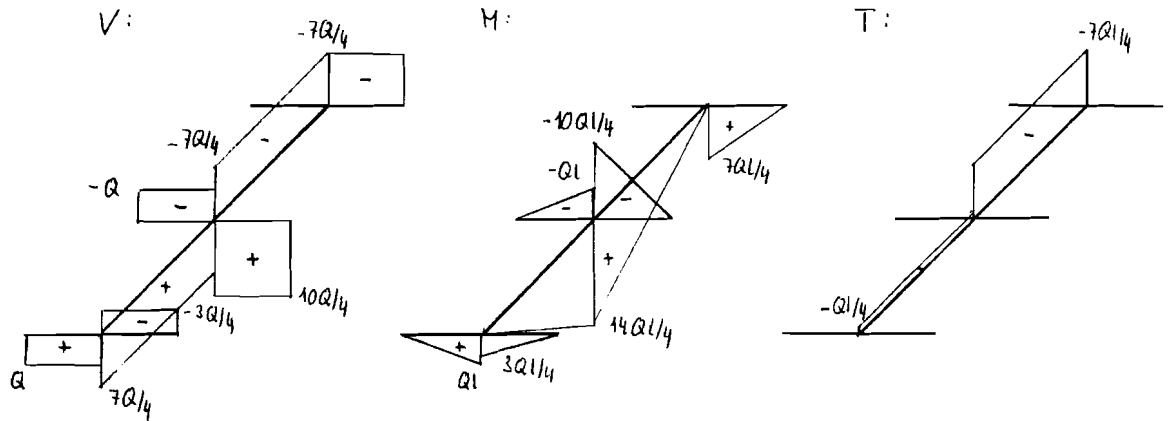
$w_C = -\frac{4QL^3}{3EI}$

$w_D = 0$

$w_E = \frac{2QL^3}{EI}$



3a)



3b) $M_{1-1} = 7Ql/4 = 175 \text{ kNm}$; $T_{1-1} = -Ql/4 = -25 \text{ kNm}$; $V_{1-1} = 7Q/4 = 35 \text{ kN}$

Punkt 1: $\sigma_{x(1)} = -90.6 \text{ N/mm}^2$

Punkt 2: $\sigma_{x(2)} = -47.7 \text{ N/mm}^2$

$\tau_{yx(1)}(T) = -8.7 \text{ N/mm}^2$

$\tau_{zx(2)}(T) = -17.3 \text{ N/mm}^2$

$\tau_{yx(1)}(V) = 0$

$\tau_{zx(2)}(V) = 4.7 \text{ N/mm}^2$

3c) $\sigma_x = -47.7 \text{ N/mm}^2$; $\tau_{zx} = -12.6 \text{ N/mm}^2$

$\sigma_1 = 3.1 \text{ N/mm}^2$

$\sigma_2 = -50.8 \text{ N/mm}^2$

$\varphi_1 = 104^\circ$