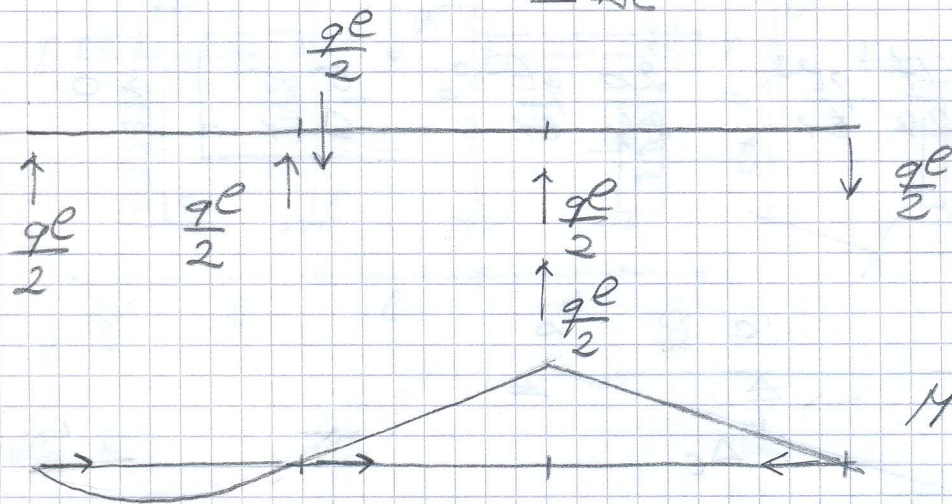
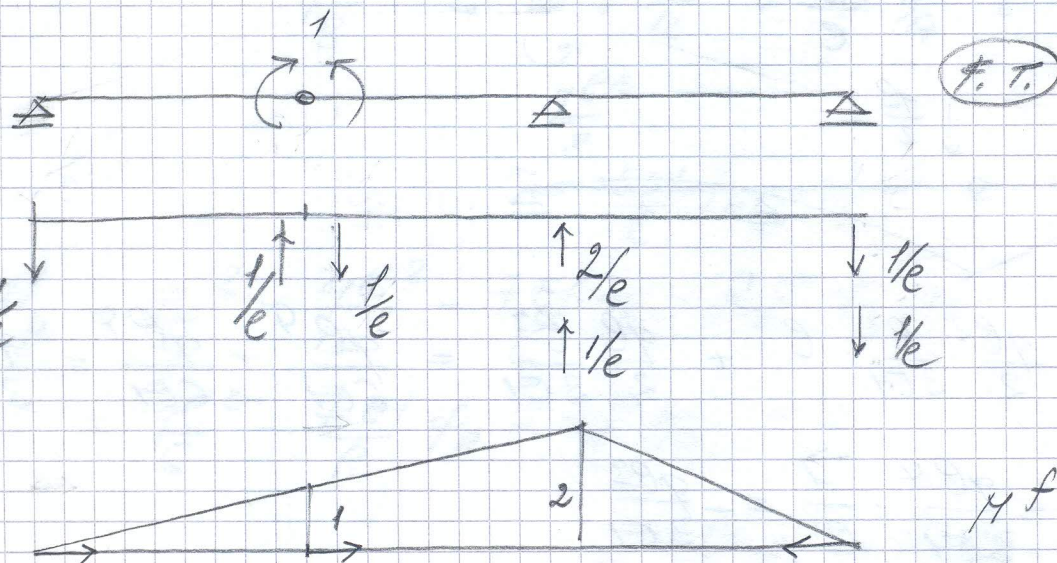


1



$$\Delta_c = \frac{qe^4}{24EI}$$



$$\begin{aligned} \Delta c &= -1 \varphi_B^S + 1 \varphi_B^D - \frac{3}{e} \Delta_c = 1 (\varphi_B^D - \varphi_B^S) - \frac{3}{e} \Delta_c = \\ &= 1 \Delta \varphi - \frac{3}{e} \Delta_c = \Delta \pi = \frac{1}{EI} \int_0^e \left[\left(-\frac{1}{e} z \right) \left(\frac{qe}{2} z - \frac{qe^2}{2} \right) + \right. \\ &\quad \left. + \left(\frac{1}{e} z + 1 \right) \left(\frac{qe}{2} z \right) + \left(\frac{3}{e} z \right) \left(\frac{qe}{2} z \right) \right] dz = \\ &= \frac{1}{EI} \int_0^e \left(-\frac{q}{2} z^2 + \frac{qz^3}{2e} + \frac{q}{2} z^2 + \frac{qe}{2} z + qz^2 \right) dz = \\ &= \frac{1}{EI} q \left[-\frac{z^3}{6} + \frac{z^4}{8e} + \frac{z^3}{6} + \frac{z^2 e}{4} + \frac{z^3}{3} \right]_0^e = \end{aligned}$$