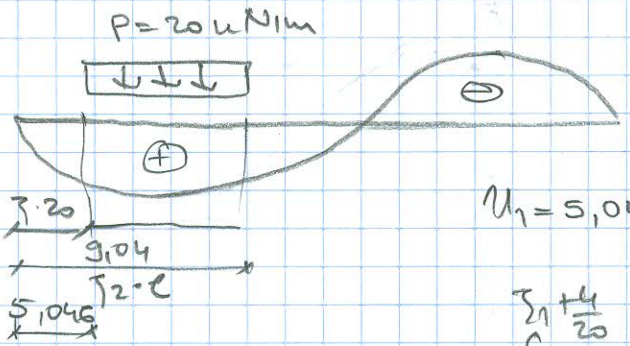
$250\xi^3 - 225\xi^2 + 25\xi + 4 = 0$ $\qquad \xi\,[0, 0{,}6]$

$\xi_1 = -0{,}0864 \quad \xi_2 = 0{,}734 \quad \boxed{\xi_3 = 0{,}2523}$ $\qquad$ max Z_S

$Z(s,u)$



$u_1 = 5{,}046 \qquad u_2 = 5{,}046 + 4 = 9{,}046$

$$\max Z(s,u) = p \cdot \int_{u_1}^{u_1+4} Z(s,u)\,du = p \cdot l \int_{\xi_1}^{\xi_1 + \frac{4}{20}} Z(s,\xi)\,d\xi$$

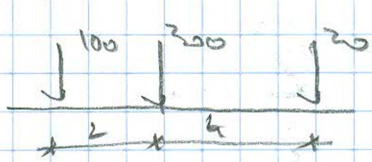
$$= 20 \cdot 20 \cdot \int_{0{,}2523}^{0{,}4523} 10(5\xi^4 - 8\xi^3 + 3\xi^2)\,d\xi = 4000\left[5 \cdot \frac{\xi^5}{5} - 8\frac{\xi^4}{4} + 3\frac{\xi^3}{3}\right]\Bigg|_{0{,}2523}^{0{,}4523}$$

$$= 4000\left[0{,}4523^5 - 2 \cdot 0{,}4523^4 + 0{,}4523^3 - 0{,}2523^5 + 2 \cdot 0{,}2523^4 - 0{,}2523^3\right] =$$

$$= 75{,}11$$

2) KRITERIJUM ZA MERODAVAN POLOŽAJ

$$\sum_{m=1}^{3} P_m \cdot Z'(s,u_m) = 0$$



min Z_S

$Z(s,u)$

$\xi_1 = \xi \qquad \xi_2 = \xi_1 + \frac{2}{20} = \xi + \frac{1}{10} \qquad \xi_3 = \xi + \frac{6}{20} = \xi + 0{,}3 \qquad \xi\,[0{,}6,\ 1]$

$$100 \cdot \left(10\xi^3 - 12\xi^2 + 3\xi\right) + 300\left(10 \cdot (\xi+0{,}1)^3 - 12(\xi+0{,}1)^2 + 3 \cdot (\xi+0{,}1)\right) +$$
$$200 \cdot \left(10(\xi+0{,}3)^3 - 12(\xi+0{,}3)^2 + 3(\xi+0{,}3)\right) = 0$$

$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

$$6000\xi^3 - 4500\xi^2 + 270\xi + 75 = 0$$

$\xi_1 = -0{,}0578 \qquad \boxed{\xi_2 = 0{,}6515} \qquad \xi_3 = 0{,}1963$