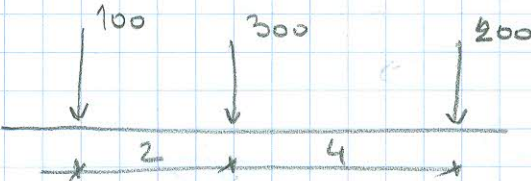



ZADATAK 4.

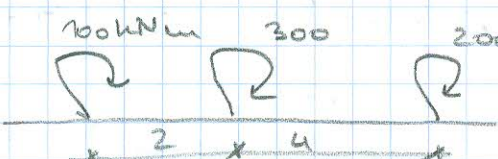
* USLED POKRETNIH OPTEREC' SRAČUNATI EKST. VR. UTIC.

F-JA $Z(s,u) = \frac{1-u}{2} \left(\frac{u}{l}\right)^2 \left(3 - 5\frac{u}{l}\right)$ $0 \leq u \leq l$, $l = 20m$

1)  $P = 20 kN/m$ $\max Z_s$

2)  $\min Z_s$ $l = \text{const}$
 $= 20$

3)  $m = 20 kN/m$ $\min Z_s$

4)  $\max Z_s$

$\xi = \frac{u}{l}$ $\frac{l}{2} (1 - \frac{u}{l}) \left(\frac{u}{l}\right)^2 (3 - 5\frac{u}{l})$ $u = \xi \cdot l$

$l = 20$ pa
umesto l to
pricu

$Z(s,u) = Z(s,\xi l) = 0,5l(1-\xi)\xi^2(3-5\xi) =$
 $= 10\xi^2(1-\xi)(3-5\xi)$
 $= 10\xi^2(3-5\xi-3\xi+5\xi^2) = 10\xi^2(5\xi^2-8\xi+3)$

$Z'(s,u) = \frac{dZ}{du} = \frac{1}{l} \frac{dZ}{d\xi} = \left(\frac{1}{20} \cdot 10(5\xi^4 - 8\xi^3 + 3\xi^2) \right)'$
 $= \frac{1}{20} \cdot 10(5 \cdot 4 \cdot \xi^3 - 8 \cdot 3\xi^2 + 3 \cdot 2 \cdot \xi)$
 $= \frac{1}{2} (20\xi^3 - 24\xi^2 + 6\xi) = 10\xi^3 - 12\xi^2 + 3\xi$

$Z''(s,u) = \frac{1}{l} \frac{dZ'(s,u)}{d\xi} = \frac{1}{20} \cdot (10 \cdot 3\xi^2 - 12 \cdot 2\xi + 3)$
 $= \frac{1}{20} (30\xi^2 - 24\xi + 3)$
 $= 1,5\xi^2 - 1,2\xi + 0,15$