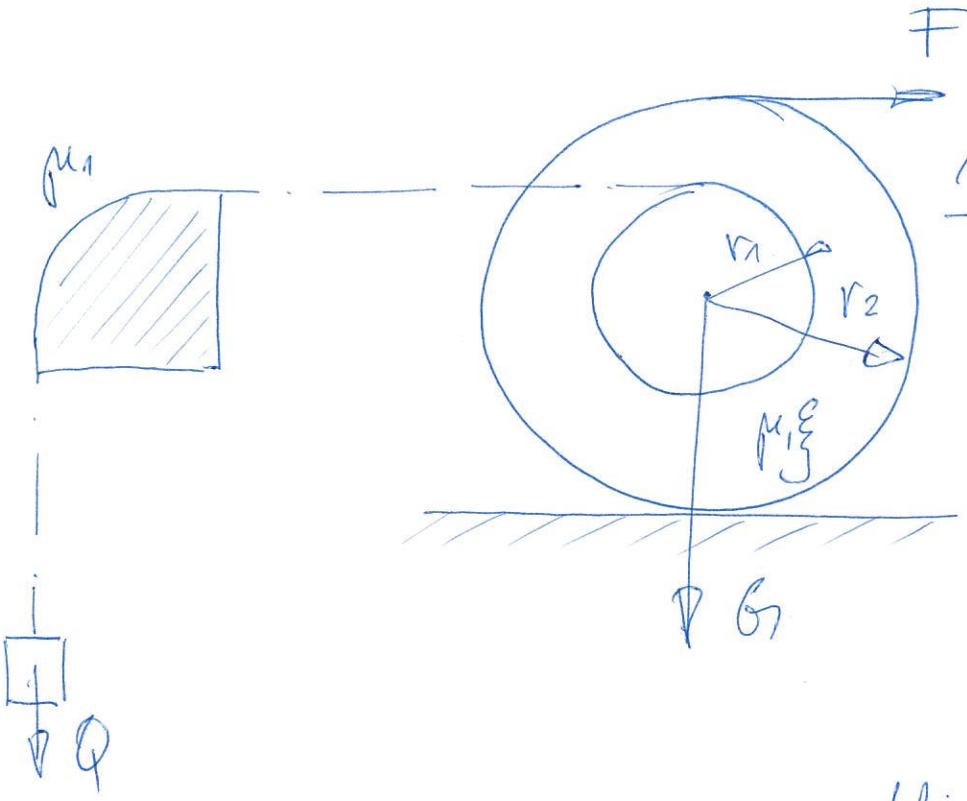


D: $G_1 = 400\,N$

$v \rightarrow$ $Q = 100\,N$

$\mu_1 = 0{,}4$

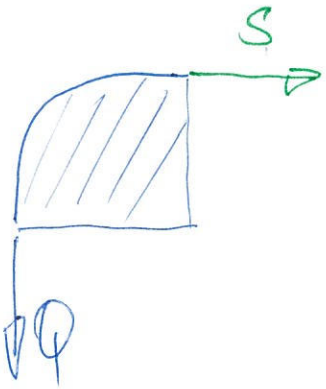
$\xi = 3\,mm$

$\mu = 0{,}2$

$r_1 = 0{,}2\,m$

$r_2 = 0{,}4\,m$

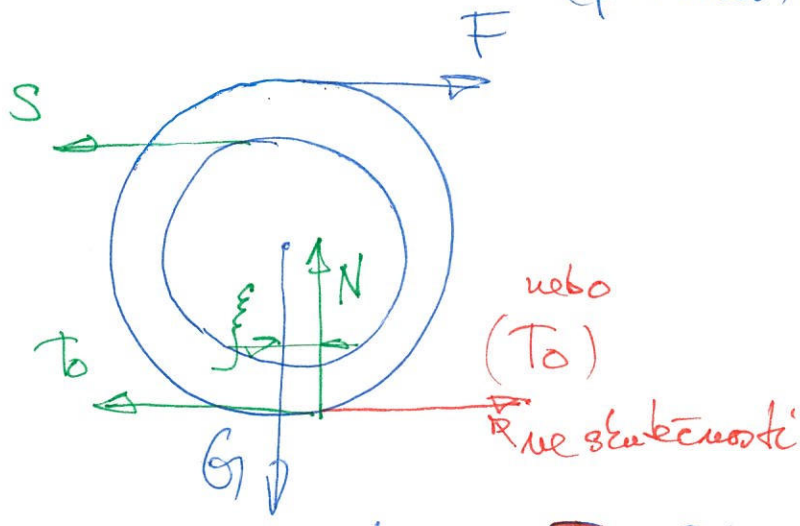
U: F, $r_{2\,min}$ (preokleza)



Eulerjeva rastlaba

$S = Q e^{\alpha \mu_1}$

$\alpha = \pi/2$



$x: F - S - T_0 = 0 \;\Big|\; F - S + T_0 = 0$ (nebo)

$y: N - G_1 = 0$

$M_{Polj.}: N\xi + S(r_1 + r_2) - F \cdot 2r_2 = 0$

Síla F

$$N\xi + S(r_1+r_2) - F\cdot 2r_2 = 0$$

$$S = Qe^{\alpha\mu_1}$$

$$N - G_1 = 0$$

$$G_1\cdot\xi + Qe^{\alpha\mu_1}(r_1+r_2) - F2r_2 = 0$$

$$F = \frac{G_1\cdot\xi + Q\cdot e^{\alpha\mu_1}(r_1+r_2)}{2r_2}$$

Prokluz

$|T_0| \leq |N|\,\mu$ — adheze

$$-T_0 = -F + S = -\frac{G_1\cdot\xi + Qe^{\alpha\mu_1}(r_1+r_2)}{2r_2} + Qe^{\alpha\mu_1} \leq G_1\cdot\mu$$

$$-G_1\xi - Qe^{\alpha\mu_1}(r_1+r_2) + Qe^{\alpha\mu_1}\cdot 2r_2 = 2r_2 G_1\mu$$

$$-G_1\xi - Qe^{\alpha\mu_1}r_1 + r_2\left[Qe^{\alpha\mu_1} + 2Qe^{\alpha\mu_1} - 2G_1\mu\right] = 0$$

$$r_2 = \frac{G_1\xi + Qe^{\alpha\mu_1}r_1}{Qe^{\alpha\mu_1} - 2G_1\mu}$$