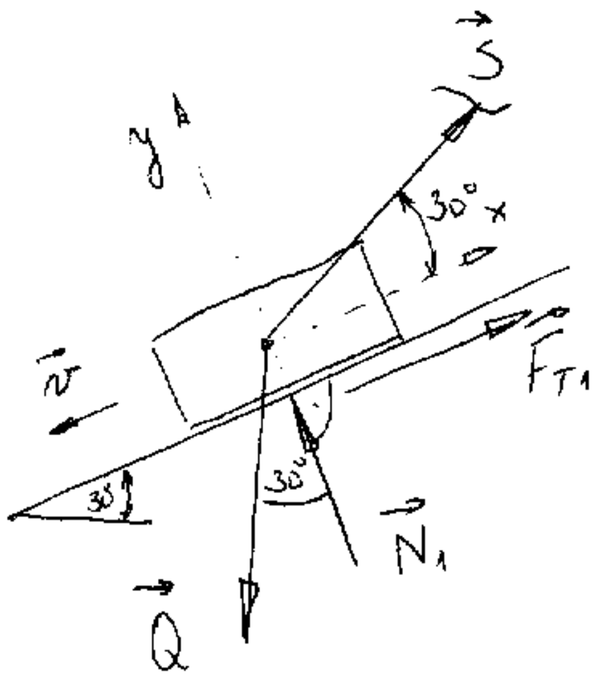
2. zadatak – grupa A

a) Posmatra se ravnoteža tereta $Q = 500N$ na strmoj ravni

$$\Sigma X = 0 \quad S\cos 30^\circ + F_{T_1} - Q\sin 30^\circ = 0 \quad \ldots (1)$$
$$\Sigma Y = 0 \quad S\sin 30^\circ + N_1 - Q\cos 30^\circ = 0 \quad \ldots (2)$$

$$F_{T_1} = \mu_1 \cdot N_1 \quad \ldots (3)$$



(3) => (1) $\quad S\cos 30^\circ + \mu_1 \cdot N_1 - Q\sin 30^\circ = 0$

$S\sin 30^\circ + N_1 - Q\cos 30^\circ = 0 \;/\cdot(-\mu_1)$

$$\left.\begin{array}{l} S\cos 30^\circ + \mu_1 N_1 - Q\sin 30^\circ = 0 \\ -S\mu_1\sin 30^\circ - \mu_1 N_1 + \mu_1 Q\cos 30^\circ = 0 \end{array}\right\} +$$

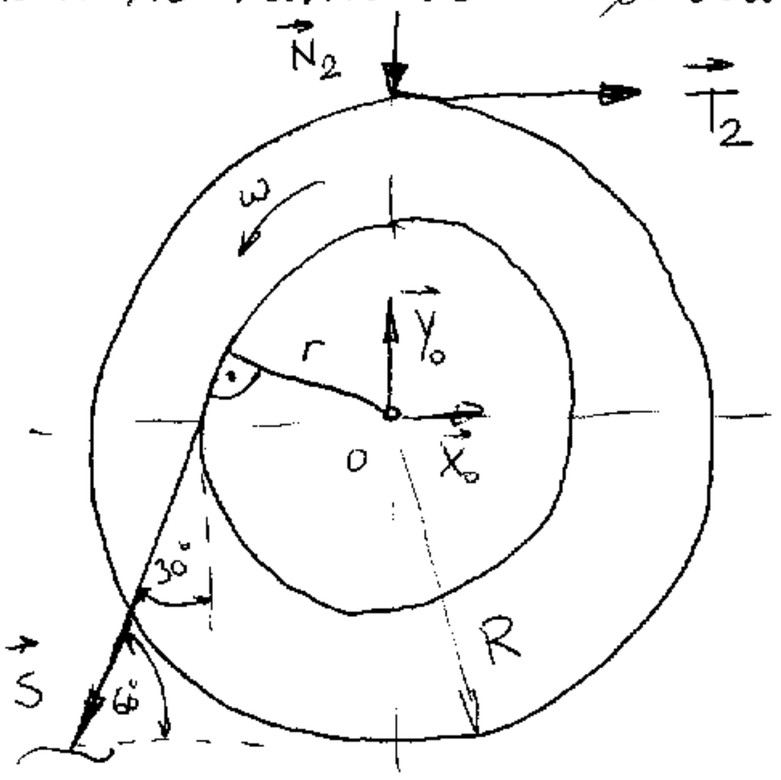
$$S(\cos 30^\circ - \mu_1 \sin 30^\circ) = Q(\sin 30^\circ - \mu_1 \cos$$

$$S = \frac{Q(\sin 30^\circ - \mu_1 \cos 30^\circ)}{\cos 30^\circ - \mu_1 \cdot \sin 30^\circ}$$

$$S = \frac{500(0{,}5 - 0{,}1 \cdot 0{,}866)}{0{,}866 - 0{,}1 \cdot 0{,}5}$$

$$S = 253{,}3\,N$$

b) Posmatra se ravnoteža doboša



$$\Sigma X = 0 \quad X_0 + T_2 - S\sin 30^\circ = 0 \quad \ldots (1)$$
$$\Sigma Y = 0 \quad Y_0 - N_2 - S\cos 30^\circ = 0 \quad \ldots (2)$$
$$\curvearrowleft \Sigma M_0 = 0 \quad S \cdot r - T_2 \cdot R = 0 \quad \ldots (3)$$

$$T_2 = \mu_2 \cdot N_2 \quad \ldots (4)$$

Iz (3) $\quad T_2 = \dfrac{S \cdot r}{R} = \dfrac{253{,}3 \cdot 0{,}2}{0{,}4}$

$$T_2 = 126{,}65\,N$$

Iz (4) $\quad N_2 = \dfrac{T_2}{\mu_2} = \dfrac{126{,}65}{0{,}3}$

$$N_2 = 422{,}2\,N$$