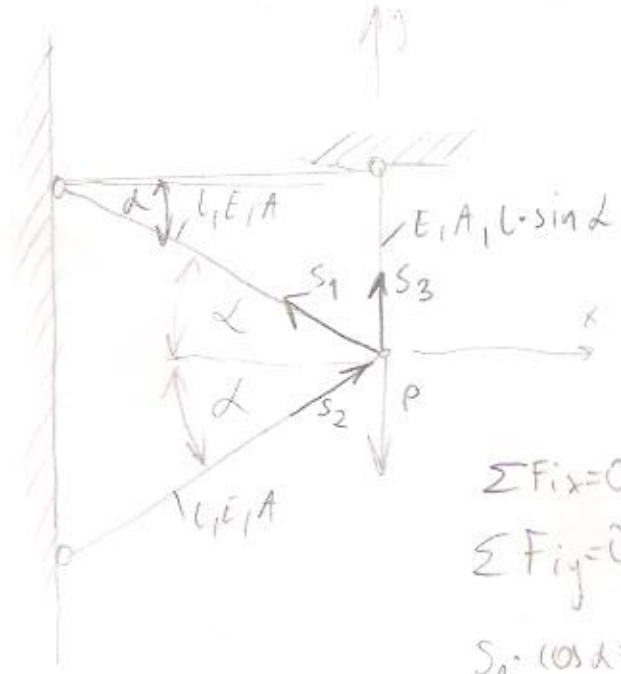


Dane:  $\alpha = 30^\circ, P, l, k_r, E$       zbuduj:  $A = ?$

np  $P = 10$        $k_r = 7$



$$\sum F_{ix} = 0 \rightarrow -S_1 \cdot \cos \alpha + S_2 \cdot \cos \alpha = 0$$

$$\sum F_{iy} = 0 \rightarrow S_1 \cdot \sin \alpha + S_2 \cdot \sin \alpha - P + S_3 = 0$$

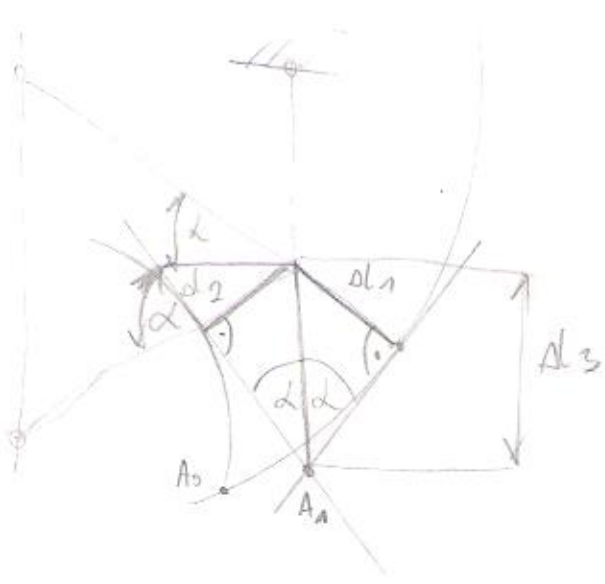
$$S_1 \cdot \cos \alpha = S_2 \cdot \cos \alpha \quad /: \cos \alpha$$

$$S_1 = S_2$$

$$\Delta l_1 = \frac{S_1 \cdot l}{E \cdot A}$$

$$\Delta l_2 = \frac{S_2 \cdot l}{L \cdot A}$$

$$\Delta l_3 = \frac{S_3 \cdot l \cdot \sin \alpha}{E \cdot A}$$



$$\frac{\Delta l_1}{\Delta l_3} = \frac{\Delta l_2}{\Delta l_3} = \sin \alpha$$

$$\frac{S_1 \cdot l}{E \cdot A} \cdot \frac{E \cdot A}{S_3 \cdot l \cdot \sin \alpha} = \sin \alpha$$

$$S_1 \cdot \sin \alpha + S_1 \cdot \sin \alpha + \frac{S_1}{\sin^2 \alpha} - P = 0$$

$$S_1 \left( \sin \alpha + \sin \alpha + \frac{1}{\sin^2 \alpha} \right) = P$$

$$\frac{S_1}{S_3 \cdot \sin \alpha} = \sin \alpha$$

$$\frac{S_1}{S_3} = \sin^2 \alpha$$

$$S_3 = \frac{S_1}{\sin^2 \alpha}$$

$$S_3 = \frac{P}{2 \cdot \sin \alpha + \frac{1}{\sin^2 \alpha}} \cdot \frac{1}{\sin \alpha}$$

$$S_3 = \frac{P}{2 \cdot \sin^3 \alpha + 1}$$

$$S_1 = \frac{P}{2 \cdot \sin \alpha + \frac{1}{\sin^2 \alpha}}$$

$$\bar{\sigma} = \frac{P}{A} \leq k_r$$

$$\bar{\sigma} = \frac{S_1}{A} \leq k_r$$

$$A \geq \frac{S_1}{k_r}$$

$$A \geq \frac{P}{\left( 2 \cdot \sin \alpha + \frac{1}{\sin^2 \alpha} \right) \cdot k_r}$$