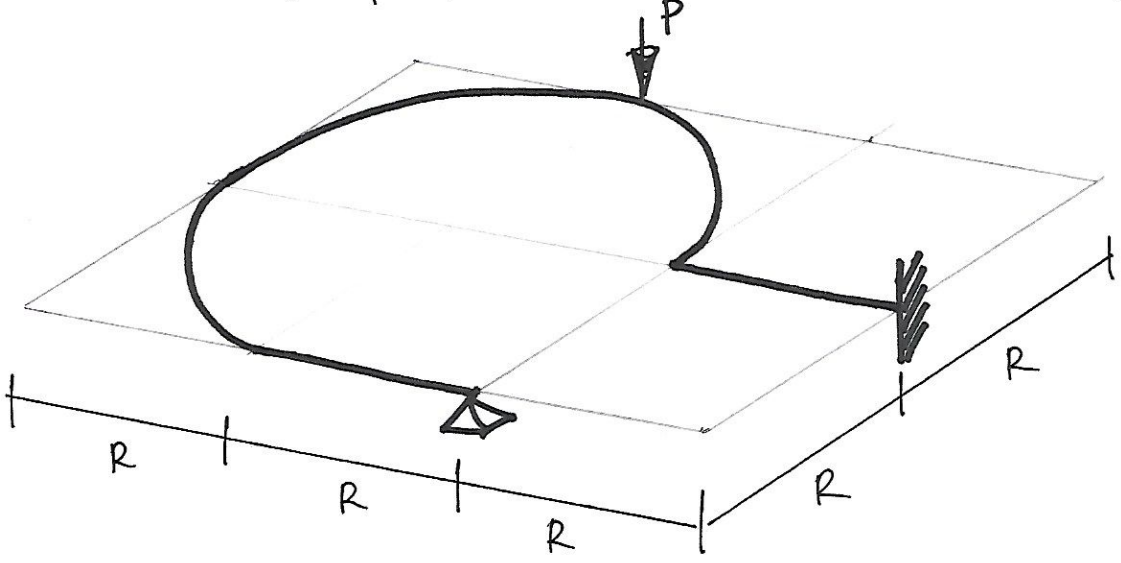
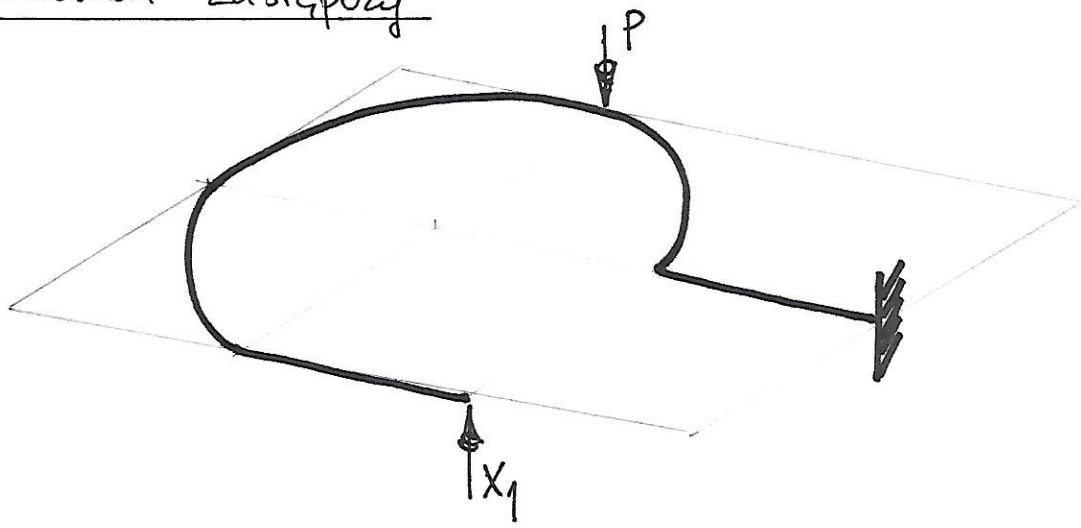


Oblicz reakcje podpór rusztu o węzłach sztywnych.

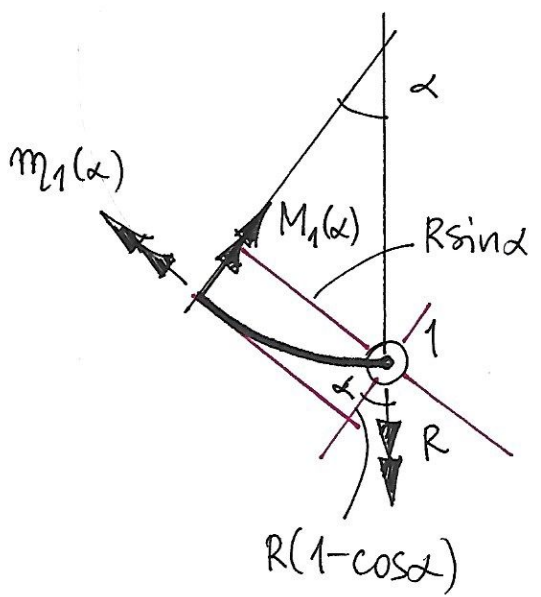
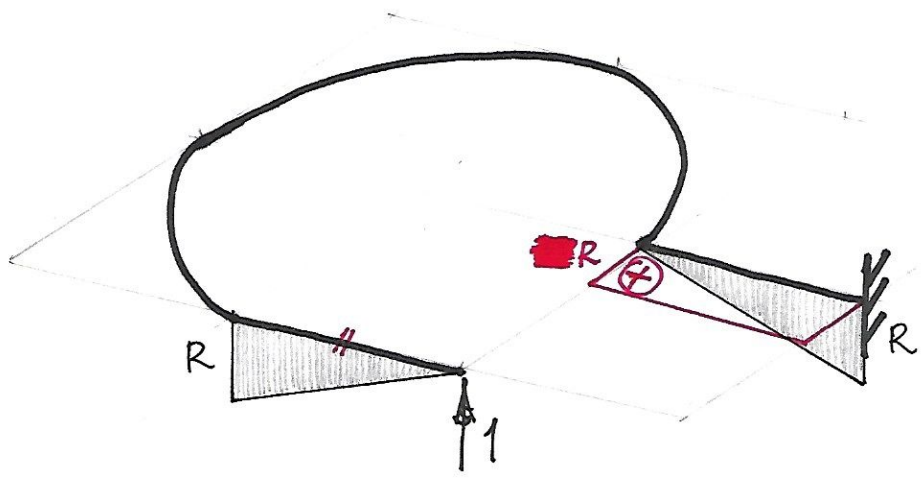


$EJ = GJs$

Schemat zastępczy



$X_1 = 1$



M_1

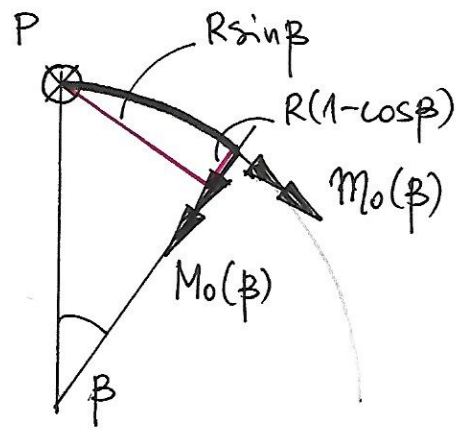
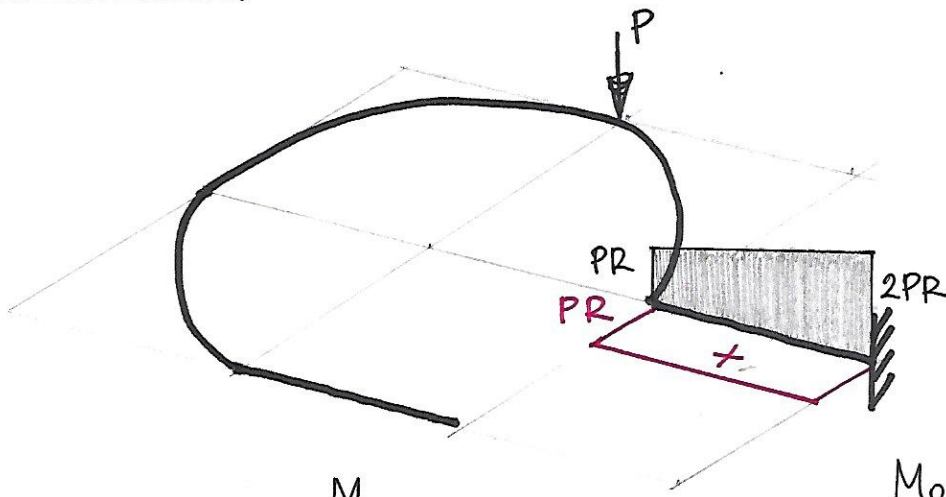
m_1

$M_1(\alpha) - R \sin \alpha - R \cos \alpha = 0$

$m_1(\alpha) - 1 \cdot R(1 - \cos \alpha) - R \sin \alpha = 0$

$\alpha \in (0, \frac{3}{2}\pi)$

stan "0"



M_0
 m_0

$$M_0(\beta) + PR \sin \beta = 0$$

$$m_0(\beta) + P \cdot R(1 - \cos \beta) = 0 \quad \beta \in (0, \frac{\pi}{2})$$

Obliczenia:

$$\delta_{11} X_1 + \delta_{10} = 0$$

$$\delta_{11} = \frac{1}{EJ} \left\{ [M_1^2 + m_1^2]_{\text{ode. proste}} + \int_0^{3/2\pi} [M_1^2(\alpha) + m_1^2(\alpha)] R d\alpha \right\}$$

$$= \left(\frac{17}{3} + \frac{9}{2} \pi \right) \frac{R^3}{EJ} \approx 19,804 \frac{R^3}{EJ}$$

$$\delta_{10} = \frac{1}{EJ} \left\{ [M_1 M_0 + m_1 m_0]_{\text{ode. proste}} + \int_0^{\frac{\pi}{2}} [M_1(\beta + \pi) M_0(\beta) + m_1(\beta + \pi) m_0(\beta)] R d\beta \right\}$$

$$= \frac{7}{6} \frac{PR^3}{EJ} \approx 1,167 \frac{PR^3}{EJ}$$

$$X_1 = -0,059 P$$

Reakcje:

