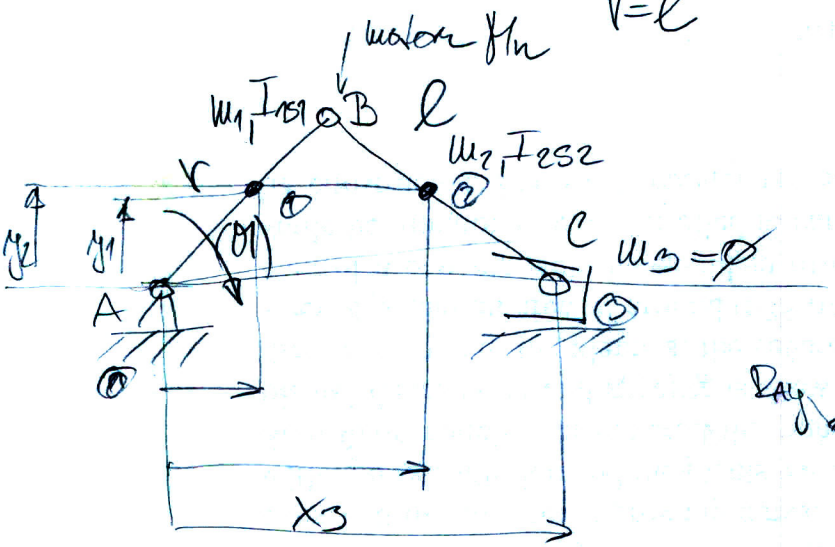
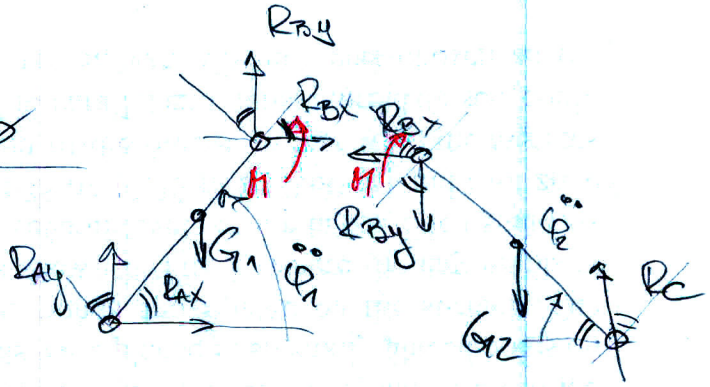
$r = l$





Uwolnienie ($\varphi = \varphi_1$)

$x_1 = \frac{r}{2} \cdot \cos\varphi_1 \Rightarrow \ddot{x}_1 = -\frac{r}{2} \cdot \dot{\varphi}_1^2 \cos\varphi_1$

$y_1 = \frac{r}{2} \cdot \sin\varphi_1 \Rightarrow \ddot{y}_1 = -\frac{r}{2} \dot{\varphi}_1^2 \sin\varphi_1$

① $m_1 \cdot \ddot{x}_1 = R_{Ax} + R_{Bx}$

$m_1 \cdot \ddot{y}_1 = R_{Ay} + R_{By} - G_1$

$I_{zS1} \cdot \ddot{\varphi}_1 = M + R_{By} \cdot \cos\varphi_1 \cdot \frac{r}{2} - R_{Bx} \cdot \sin\varphi_1 \cdot \frac{r}{2}$

$+ R_{Ax} \cdot \sin\varphi_1 \cdot \frac{r}{2} - R_{Ay} \cdot \cos\varphi_1 \cdot \frac{r}{2}$

$r = l \Rightarrow \varphi_1 = \varphi_2$

$x_2 =$

② $m_2 \cdot \ddot{x}_2 = -R_{Bx}$

$m_2 \cdot \ddot{y}_2 = -R_{By} - G_2 + R_c$

$I_{zS2} \cdot \ddot{\varphi}_2 = M - R_{Bx} \cdot \sin\varphi_2 \cdot \frac{l}{2} - R_{By} \cdot \cos\varphi_2 \cdot \frac{l}{2} - R_c \cdot \cos\varphi_2 \cdot \frac{l}{2}$

1)

- $R_{Ax} = m_1 \ddot{x}_1 - R_{Bx}$

$$I_{1S1} \cdot \ddot{\varphi}_1 = M + R_{By} \cdot \cos\varphi_1 \cdot \frac{r}{2} - R_{Bx} \sin\varphi_1 \cdot \frac{r}{2} + m_1 \ddot{x}_1 \sin\varphi_1 \frac{r}{2} - R_{Bx} \sin\varphi_1 \frac{r}{2} - R_{Ay} \cos\varphi_1 \cdot \frac{r}{2}$$

- $R_{Ay} = m_1 \ddot{y}_1 - R_{By} - G_1$

$$I_{1S1} \cdot \ddot{\varphi}_1 = M + R_{By} \cos\varphi_1 \frac{r}{2} - 2R_{Bx} \sin\varphi_1 \frac{r}{2} + m_1 \ddot{x}_1 \sin\varphi_1 \frac{r}{2} - R_{Bx} \sin\varphi_1 \frac{r}{2} - m_1 \ddot{y}_1 \cos\varphi_1 \frac{r}{2} - R_{By} \cos\varphi_1 \cdot \frac{r}{2} - m_1 g \cdot \cos\varphi_1 \cdot \frac{r}{2}$$

$$I_{1S1} \cdot \ddot{\varphi}_1 = M - 2R_{Bx} \sin\varphi_1 \cdot \frac{r}{2} + m_1 \ddot{x}_1 \sin\varphi_1 \frac{r}{2} - m_1 \ddot{y}_1 \cos\varphi_1 \frac{r}{2} - m_1 g \cos\varphi_1 \frac{r}{2}$$

2)

- $R_C = m_2 \ddot{y}_2 + R_{By} + G_2$

$$I_{2S2} \cdot \ddot{\varphi}_2 = M - R_{Bx} \sin\varphi_2 \cdot \frac{l}{2} - R_{By} \cos\varphi_2 \cdot \frac{l}{2} - m_2 \ddot{y}_2 \cos\varphi_2 \cdot \frac{l}{2} - R_{By} \cdot \cos\varphi_2 \cdot \frac{l}{2} - m_2 \cdot g \cdot \cos\varphi_2 \cdot \frac{l}{2}$$