



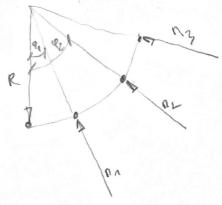
INSTITUTO DE SISTEMAS

P. 3,8 =

 $P_1 = \frac{b}{R}, P_2 = \frac{2b}{R}, l = 19.6$ $P_3 = \frac{3b}{R}$ $P_{1x} = ltR \cdot sin(P_1), P_{2x} = R sin(P_2) + l$ $P_{3x} = R sin(P_3) + l$ $P_{1z} = -R + R cos P_1 = -R(1 - cos P_1)$

$$R_{12} = -R(1-\cos \theta_2)$$

 $R_{3k} = -R(1-\cos \theta_3)$



$$n_{4} \times = -\sin \theta_{4}$$
, $n_{12} = -\cos \theta_{4}$
 $n_{2} \times = -\sin \theta_{2}$, $n_{22} = -\cos \theta_{2}$
 $n_{3} \times = -\sin \theta_{3}$, $n_{3} \times = -\cos \theta_{3}$