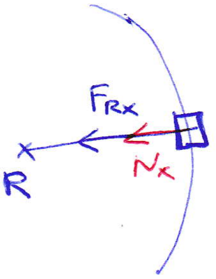
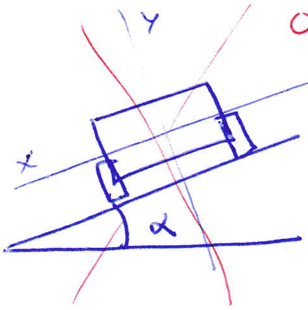
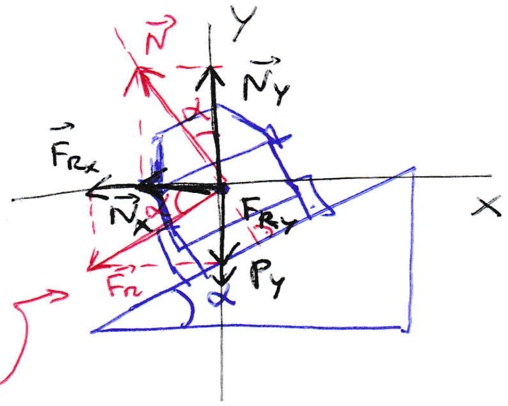
Resolver si ahora la curva está peraltada un ángulo $\alpha$, según el dibujo.



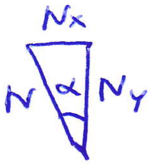

OJO NO PONER S.R. ⊥ al plano. Se pone así




La normal N y el rozamiento $F_R$ cambian de dirección pero la fuerza centrípeta $m\cdot\vec{a}_n$ sigue siendo horizontal.

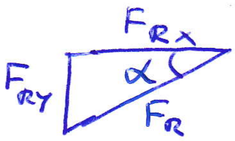
$$\sum \vec{F}_x = N_x + F_{Rx} = m\cdot a_n$$

$$\sum \vec{F}_y = N_y - F_{Ry} - P_y = 0$$




$$N_y = N\cdot\cos\alpha$$

$$N_x = N\cdot\operatorname{sen}\alpha$$




$$F_{Ry} = F_R\cdot\operatorname{sen}\alpha$$

$$F_{Rx} = F_R\cdot\cos\alpha$$

$$F_R = \mu\cdot N$$

$$\sum F_x = N_x + F_{Rx} = m\cdot a_n \longrightarrow N\cdot\operatorname{sen}\alpha + \mu\cdot N\cdot\cos\alpha = m\cdot\frac{V_{max}^2}{R} \quad (1)$$

$$\sum F_y = N_y = F_{Ry} + P_y \longrightarrow N\cdot\cos\alpha = \mu\cdot N\cdot\operatorname{sen}\alpha + m\cdot g \quad (2)$$

De (2) despejamos $N \Rightarrow N\cos\alpha - \mu N\operatorname{sen}\alpha = m\cdot g$

$$N = \frac{m\cdot g}{(\cos\alpha - \mu\cdot\operatorname{sen}\alpha)} \longrightarrow \text{sustituyo en (1)}$$

$$N(\operatorname{sen}\alpha + \mu\cos\alpha) = m\frac{V^2}{R}$$

$$\frac{\cancel{m}\cdot g}{\cos\alpha - \mu\operatorname{sen}\alpha}\cdot(\operatorname{sen}\alpha + \mu\cos\alpha) = \cancel{m}\cdot\frac{V_{max}^2}{R}$$

$$\frac{V_{max}^2}{R} = \frac{\operatorname{sen}\alpha + \mu\cos\alpha}{\cos\alpha - \mu\operatorname{sen}\alpha}\cdot g \longrightarrow \boxed{V_{max} = \sqrt{g\cdot R\cdot\frac{\operatorname{sen}\alpha + \mu\cos\alpha}{\cos\alpha - \mu\operatorname{sen}\alpha}}}$$