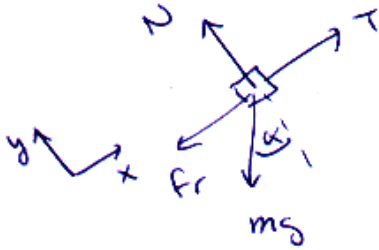


SOLUCIÓN EJERCICIO 7

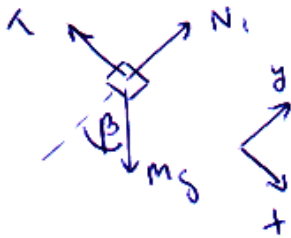
i) DCL m



$$x) T - f_r - mg \sin \alpha = 0$$

$$y) N - mg \cos \alpha = 0$$

DCL M



$$x) Mg \sin \beta = T$$

$$y) N_1 - Mg \cos \beta = 0$$

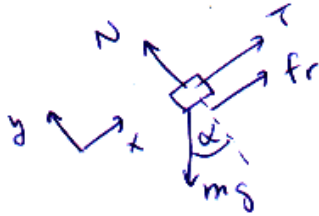
$$\Rightarrow Mg \sin \beta - f_r - mg \sin \alpha = 0$$

$$f_r = Mg \sin \beta - mg \sin \alpha \leq \mu mg \cos \alpha$$

$$\boxed{\frac{M}{m} \leq \frac{\sin \alpha + \mu \cos \alpha}{\sin \beta}}$$

SOLUCIÓN EJERCICIO 7

ii) SOLO CAMBIA DE m



$$x) \quad T + fr - mg \sin \alpha = 0$$

$$y) \quad N - mg \cos \alpha = 0$$

$$\Rightarrow) \quad Mg \sin \beta + fr - mg \sin \alpha = 0$$

$$fr = mg \sin \alpha - Mg \sin \beta \leq \mu mg \cos \alpha$$

$$m \sin \alpha - \mu m \cos \alpha \leq M \sin \beta$$

$$\boxed{\frac{\sin \alpha - \mu \cos \alpha}{\sin \beta} \leq \frac{M}{m}}$$

CONDICIÓN SOBRE μ ES QUE: $\sin \alpha - \mu \cos \alpha > 0$

$$\Rightarrow) \quad \mu < \tan \alpha$$