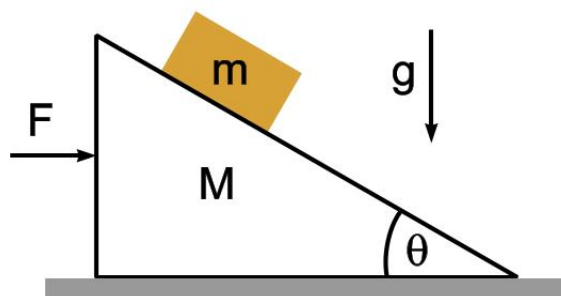
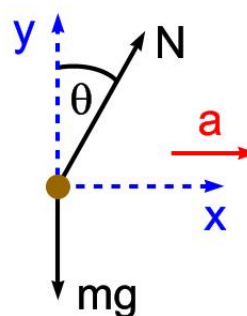


SOLUCIÓN EJERCICIO 5

i)



DCL m



x)  $N \sin \theta = ma$

y)  $N \cos \theta - mg = 0 \Rightarrow N = \frac{mg}{\cos \theta}$

ENTONCES

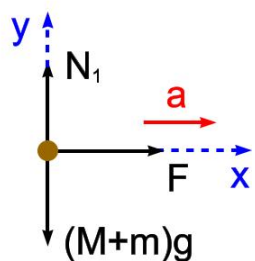
$$N \sin \theta = ma \Rightarrow mg \frac{\sin \theta}{\cos \theta} = ma$$

$$a = g \tan \theta$$

DOS MANERAS DE OBTENER F

DCL (M+m)

1er CASO



x)  $F = (M+m)a$

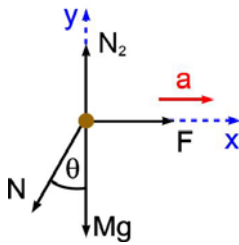
y)  $N_1 - (m+M)g = 0$

$\therefore F = (M+m)g \tan \theta$

SOLUCIÓN EJERCICIO 5

2<sup>do</sup> CASO

DCL M



$$x) \quad F - N \sin \theta = Ma$$

$$y) \quad N_2 - N \cos \theta - Mg = 0$$

ENTONCES

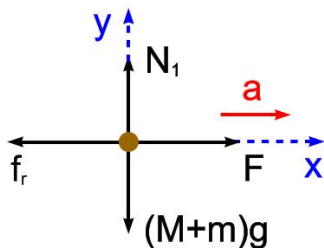
$$F = Ma + N \sin \theta$$

$$F = Mg \tan \theta + \frac{mg}{\cos \theta} \sin \theta$$

$$F = (M+m)g \tan \theta$$

ii) SI EXISTE ROCE CON EL SUELO SE TIENE

DCL (M+m)



$$x) \quad F - f_r = (M+m)a$$

$$y) \quad N_1 - (M+m)g = 0$$

$$\Rightarrow \quad F = f_r + (M+m)a$$

$$\text{PERO } f_r = \mu N_1 = \mu (M+m)g$$

SOLUCIÓN EJERCICIO 5

ADEMÁS

$$a = g \tan \theta$$

(ESTO NO CAMBIA  
POR EL ROCE CON  
EL SUELO)

ENTONCES

$$F = \mu(M+m)g + (M+m)g \tan \theta$$

$$F = (\mu + \tan \theta)(M+m)g$$