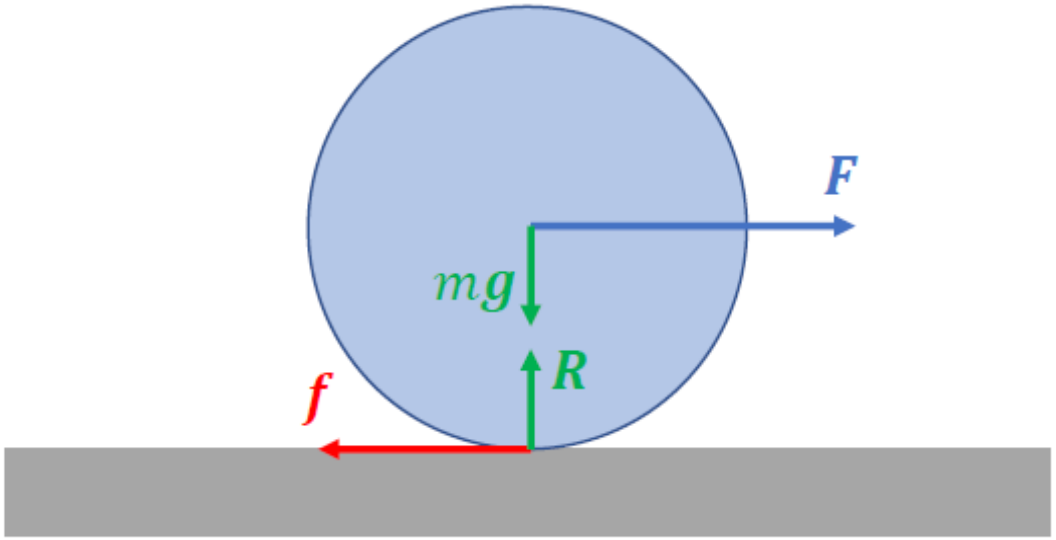
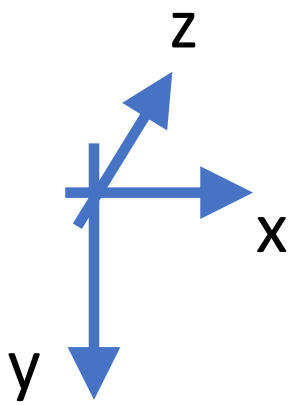


$$\vec{v}_{CM} = \vec{r} \times \vec{\omega} \rightarrow \vec{a}_{CM} = \vec{r} \times \vec{\alpha}$$

$$m\,\vec{a}_{CM} = \vec{F} - \vec{f}$$

$$I_{CM}\vec{\alpha} = \frac{1}{2}mr^2\vec{\alpha} = \vec{r} \times \vec{f}$$



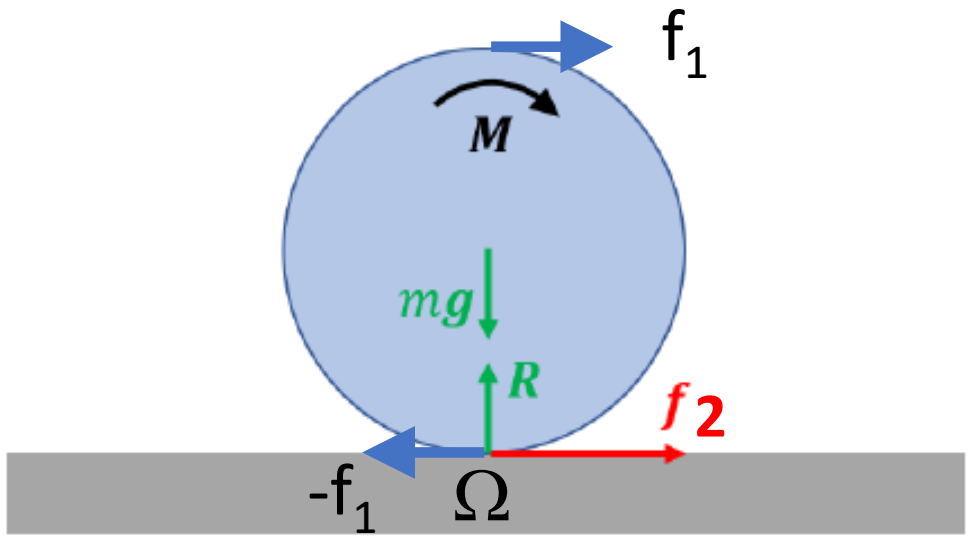
$$a_{CM} = r\alpha$$
$$m\,a_{CM} = F - f$$
$$\frac{1}{2}mr^2\alpha = rf$$

$$\alpha = 14\ rad/s^2$$
$$a_{CM} = \frac{2}{3}\frac{F}{m} = 2{,}8\ m/s^2$$
$$\frac{1}{2}m\,a_{CM} = f = 7N$$

Problema 39

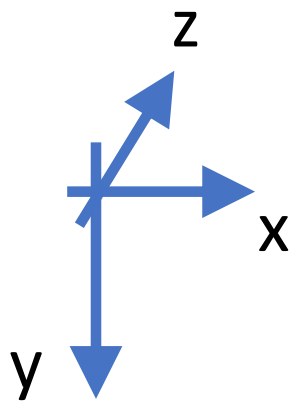
$$7\ N = f < \mu_s R = \mu_s mg = 14{,}7\ N$$

Condizione di non scivolamento soddisfatta



Stesso α di prima

$$2rf_1 = M = I_\Omega \alpha = \frac{3}{2} m r^2 \alpha \rightarrow M = 4{,}2\ Nm \rightarrow f_1 = 10{,}5\ N$$



$$m\ a_{CM} = f_2 = 14\ N$$

$$14\ N = f_2 < \mu_s R = \mu_s mg = 14{,}7\ N$$

Condizione di non scivolamento soddisfatta