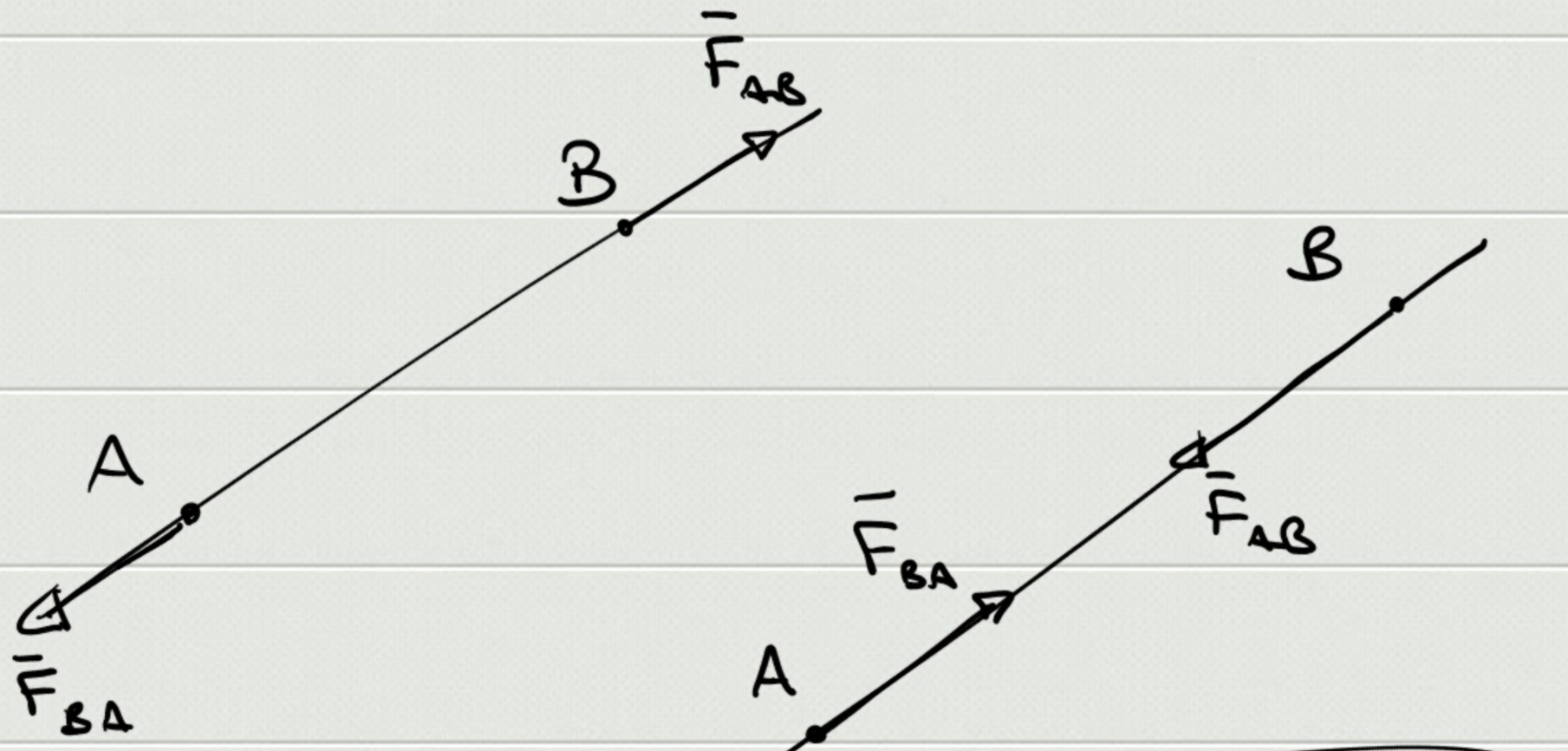
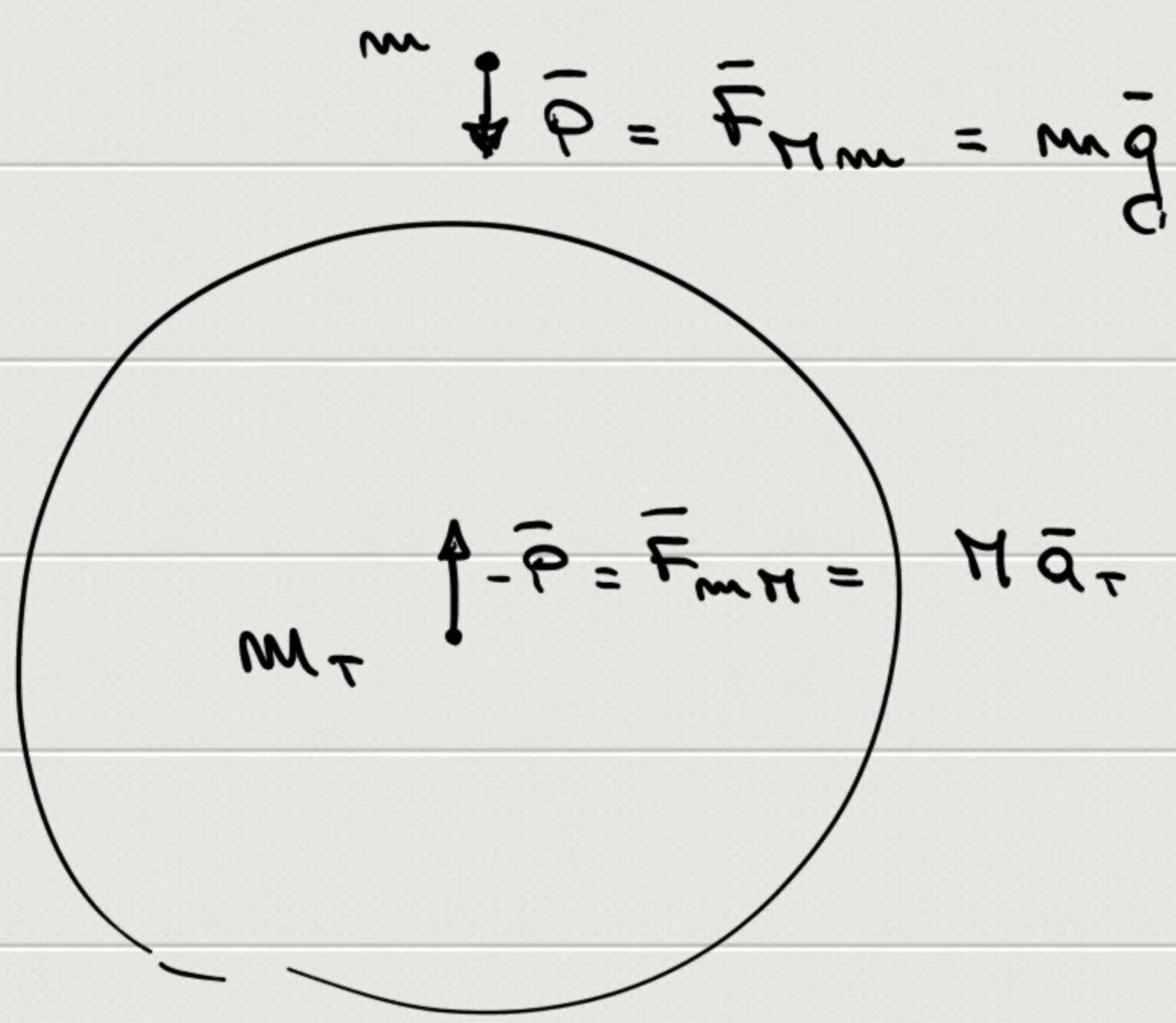
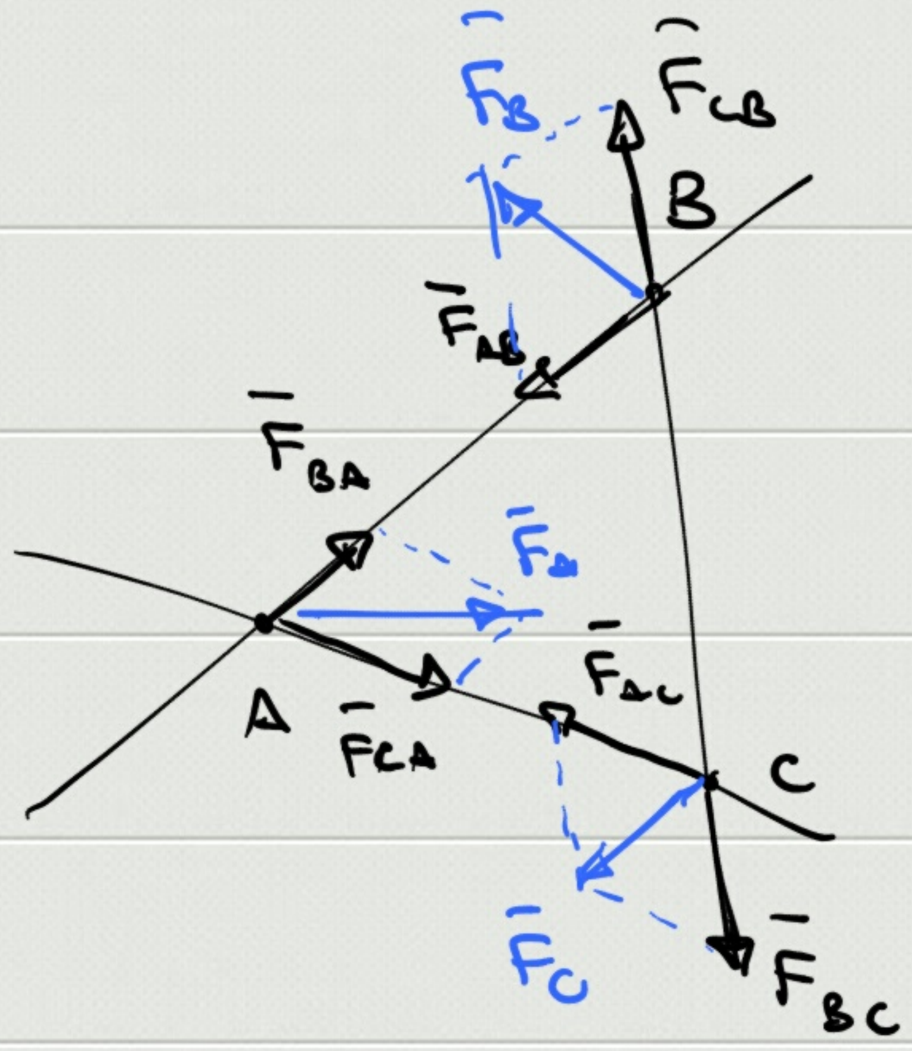


$$\bar{F}_{AB} = -\bar{F}_{BA}$$

3ª legge di Newton

(principio di azione e reazione)





$$\bar{F}_i = m\bar{a}_i \Rightarrow \bar{a}_i$$

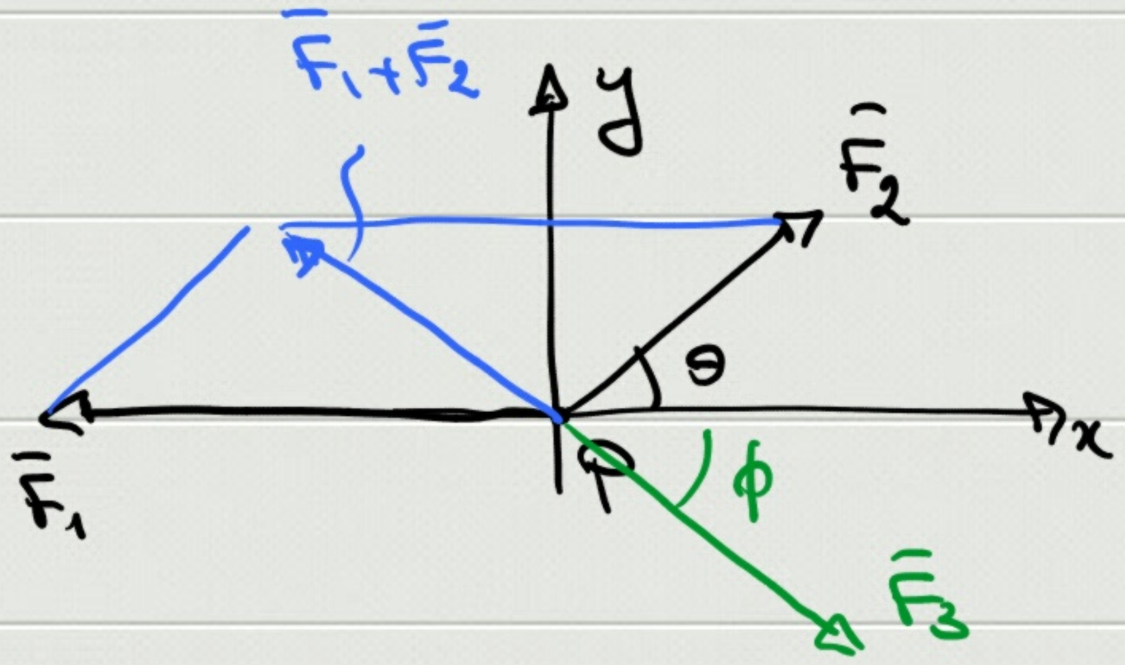
$$\bar{R} = \sum_i \bar{F}_i = m\bar{a}$$

$$\bar{a} = \frac{\bar{R}}{m} = \frac{1}{m}\sum_i \bar{F}_i = \sum_i \frac{\bar{F}_i}{M_i} = \sum_i \bar{a}_i$$

$$\bar{R} = 0 \Rightarrow \bar{a} = 0 \Rightarrow v = \text{cost} \begin{cases} v = 0 & \text{equilibrio statico} \\ v \neq 0 & \text{equilibrio dinamico} \end{cases}$$

$$\boxed{\bar{R} = 0} \qquad R_x = R_y = R_z = 0$$

$$\Rightarrow \sum_i F_{ix} = 0 \qquad \sum_i F_{iy} = 0 \qquad \sum_i F_{iz} = 0$$



$F_1 = 40$ N

$F_2 = 25$ N

$\theta = \pi/4$

$\bar{F}_3 = ?$ equil. statico

$$\Rightarrow \bar{R} = 0 \quad \Rightarrow \quad \bar{F}_1 + \bar{F}_2 + \bar{F}_3 = 0$$

$$x: \; F_{1x} + F_{2x} + F_{3x} = 0 \quad \Rightarrow \quad -|\bar{F}_1| + F_2 \cos\theta + F_{3x} = 0$$

$$y: \; F_{1y} + F_{2y} + F_{3y} = 0 \quad \Rightarrow \quad F_2 \sin\theta + F_{3y} = 0$$

$$\begin{cases} F_{3x} = +|\bar{F}_1| - F_2 \cos\theta \\ F_{3y} = -F_2 \sin\theta \end{cases}$$

$$F_3 = \sqrt{F_{3x}^2 + F_{3y}^2} = 28.5 \text{ N}$$

$$\operatorname{tg}\phi = \frac{F_{3y}}{F_{3x}} \quad \Rightarrow \quad \phi = \operatorname{atg}\left(\frac{F_{3y}}{F_{3x}}\right) = -38.4°$$