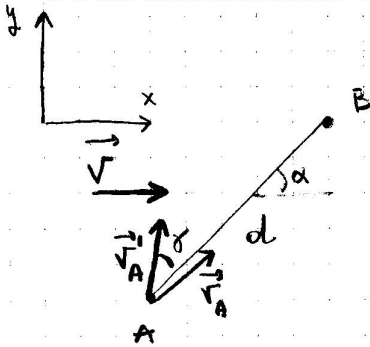


Esercizio dell' aeroplano



\vec{V} = velocità del vento costante

α

tempo del volo τ

1) \vec{V}_A : in SR Assoluto ?

2) \vec{V}'_A : in SR vento ?

3) Angolo γ ?

$$\vec{V}_A = \vec{V}'_A + \vec{V}$$

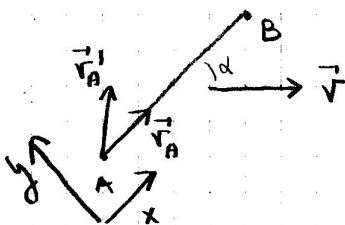
1) $|\vec{V}_A| = \frac{d}{\tau} \quad \vec{V}_A \parallel \overline{AB}$

$$\begin{cases} V_{Ax} = V_A \cos \alpha \\ V_{Ay} = V_A \sin \alpha \end{cases}$$

2) $\begin{cases} V'_{Ax} = V_{Ax} - V \\ V'_{Ay} = V_{Ay} \end{cases}$

$$\Rightarrow V'_A = \sqrt{V_A^2 \cos^2 \alpha + V^2 - 2 V_A V \cos \alpha + V_A^2 \sin^2 \alpha} = \sqrt{V_A^2 + V^2 - 2 V_A V \cos \alpha}$$

3) È molto più comodo lavorare con $\{x, y\}$ punti



$$\Rightarrow \vec{V}_A = (V_A, 0)$$

$$\vec{V} = (V \cos \alpha, -V \sin \alpha)$$

$$\vec{V}'_A = (V'_A \cos \gamma, V'_A \sin \gamma)$$

$$V'_A \cos \gamma = V_{Ax} - V_x = V_A - V \cos \alpha$$

$$V'_A \sin \gamma = +V \sin \alpha$$

$$\Rightarrow \tan \gamma = \left(\frac{V \sin \alpha}{V_A - V \cos \alpha} \right)$$