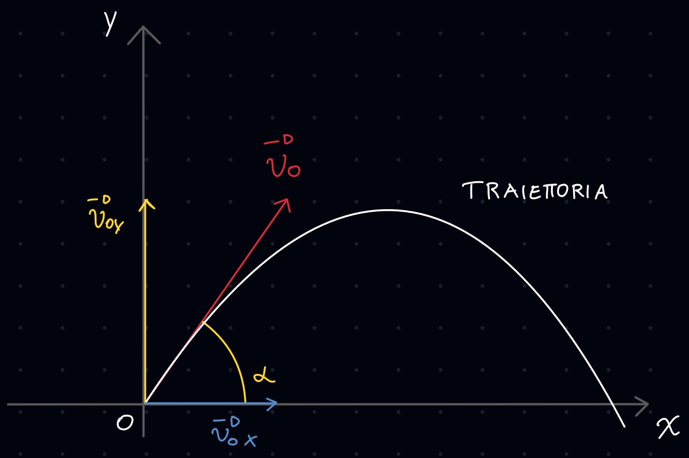


$$\begin{cases} x = \hat{i}\, v_0 t \\ y = \hat{j}\, [v_0 t + \frac{1}{2} a t^2] \end{cases}$$

$$\begin{cases} x = v_0 \cos\alpha \cdot t \\ y = v_0 \sin\alpha \cdot t - \frac{1}{2} g t^2 \end{cases}$$

## RICAVARE LA TRAIETTORIA

$$t = \frac{x}{v_0 \cos\alpha} \rightarrow y(t) = v_0 \sin\alpha \cdot \frac{x}{v_0 \cos\alpha} - \frac{1}{2} g \frac{x^2}{v_0^2 \cos^2\alpha}$$

$$\rightarrow y(x) = x \tan\alpha - \frac{g x^2}{2 v_0^2 \cos^2\alpha}$$ TRAIETTORIA

## RICAVARE IL MAX

Derivo $y(x)$ $\rightarrow$ $y'(x) = \tan\alpha - \frac{g}{2 v_0^2 \cos^2\alpha} x$

Discuto quando $y'(x) = 0$

↳ per $x_0 = \tan\alpha \cdot \frac{(2 v_0^2 \cos^2\alpha)}{g}$ coordinata $x$

$y_0 = y'(x_0)$ coordinata $y$

## RICAVARE TEMPO DI VOLO

Dipende da $y(t)$ $\rightarrow$ $y(t) = v_0 \sin\alpha - \frac{1}{2} g t^2 = 0$

$\Longleftrightarrow \frac{1}{2} g t^2 = v_0 \sin\alpha \rightarrow t = \sqrt{\frac{2 v_0 \sin\alpha}{g}}$ Tempo di Volo (galileo)