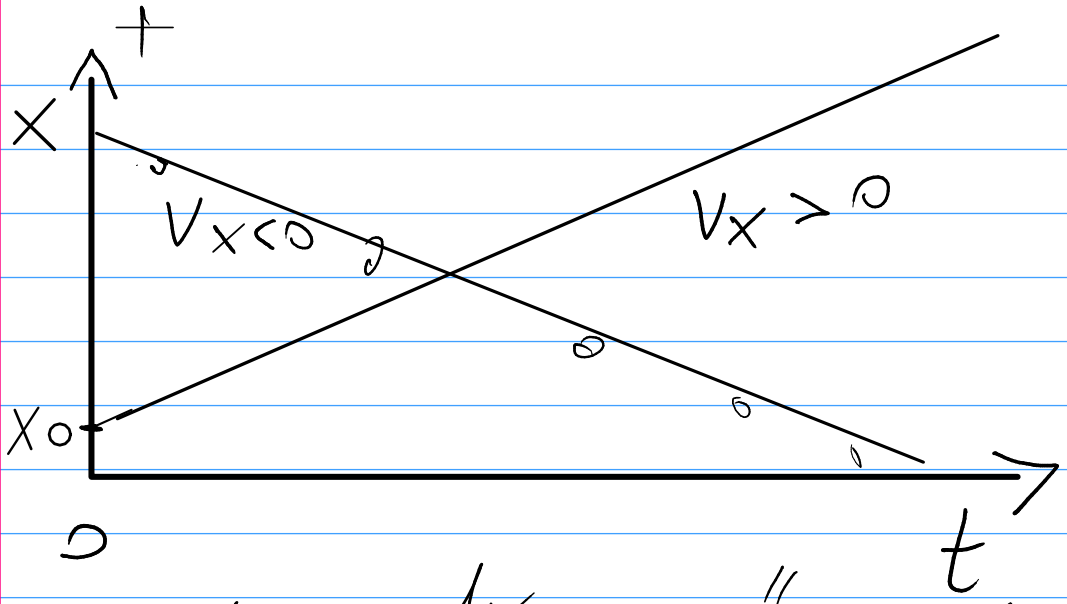
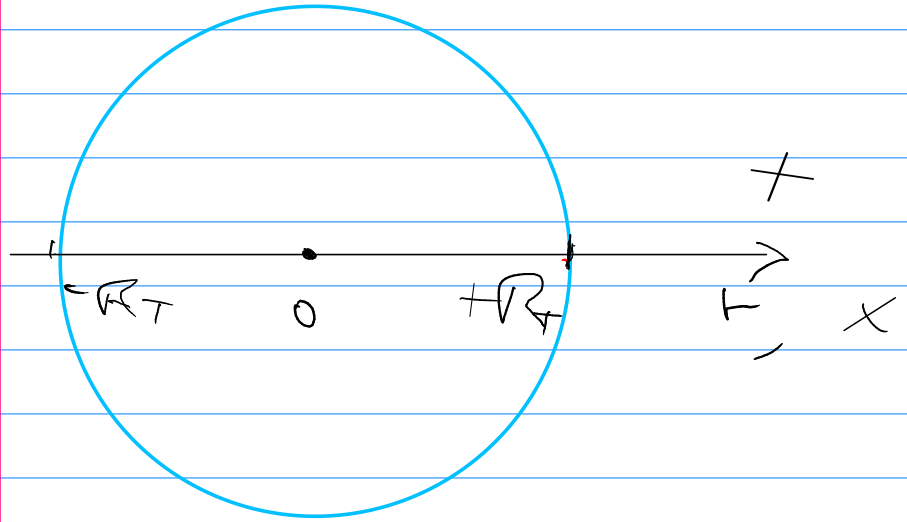


$$v_x = \frac{dx}{dt} \rightarrow \text{"pendenza"}$$



$$dx = v_x \cdot dt \quad \Big\| \quad \begin{matrix} v_x > 0 & dt > 0 \Rightarrow dx > 0 \\ v_x < 0 & dt > 0 \Rightarrow dx < 0 \end{matrix}$$

$\Delta t \to 0$

$$\Delta x = \overline{v_x} \cdot \Delta t$$

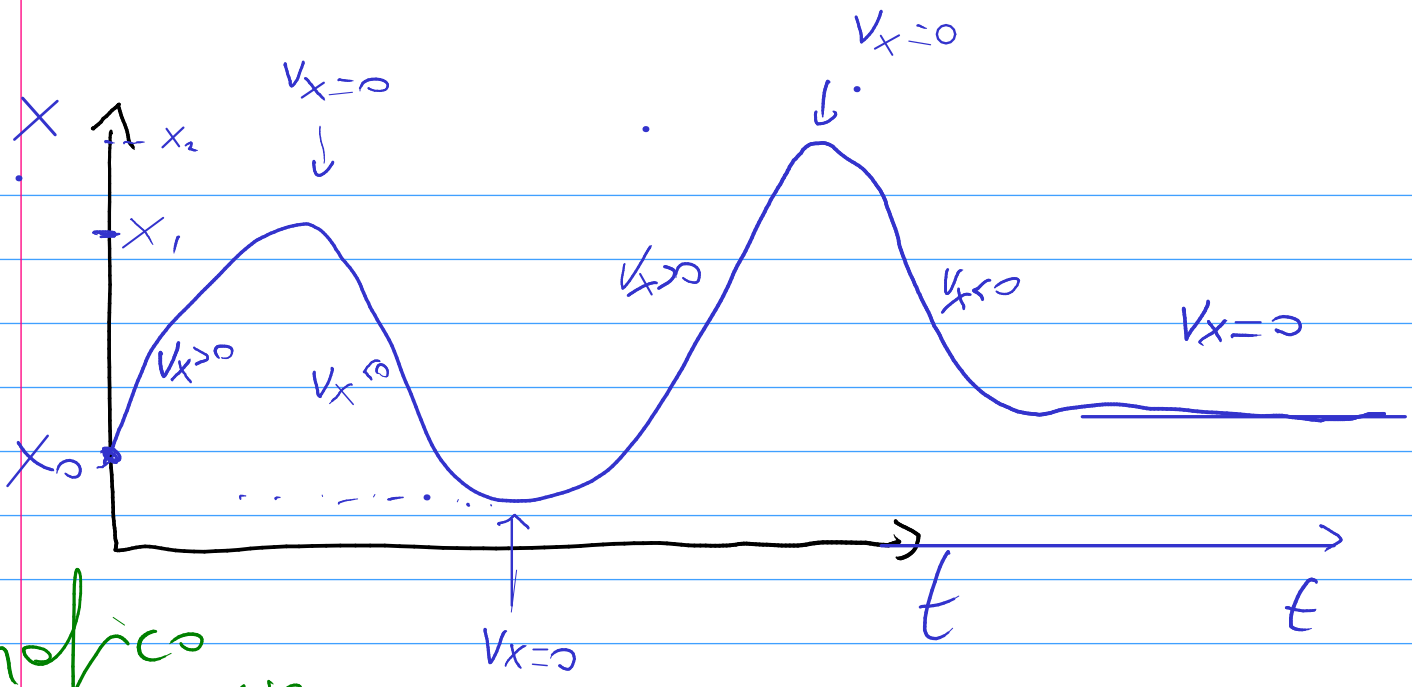
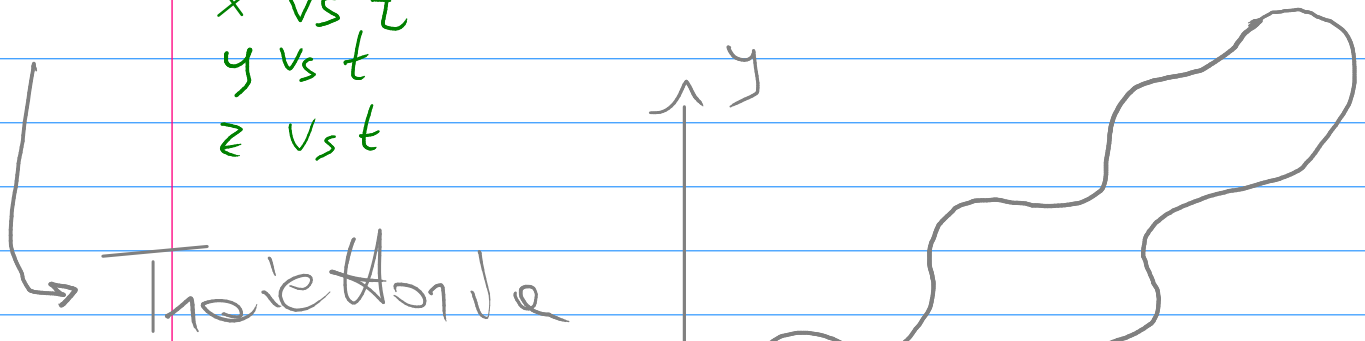


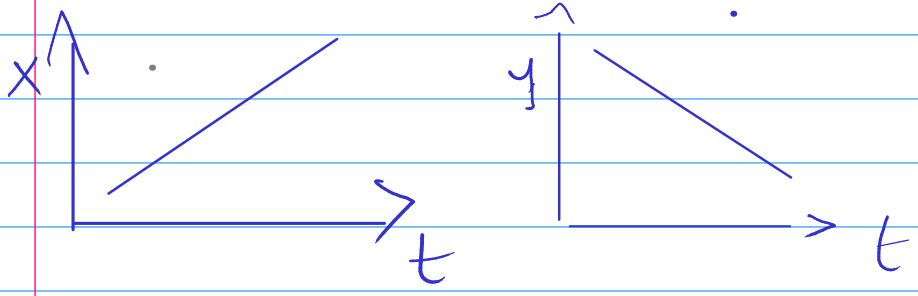
Grafico orario

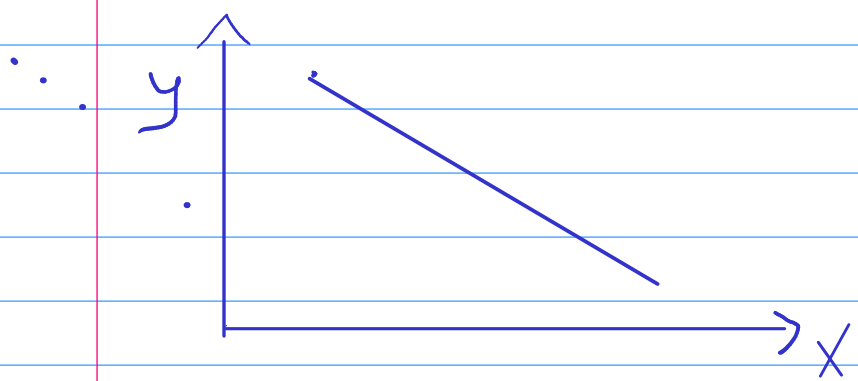
x vs t

y vs t

z vs t







$v = \frac{2\pi R}{T}$ velocità lungo la circonf

(f) $\nu = \frac{1}{T}$ frequenza di rotazione

$\omega = \frac{2\pi}{T}$ velocità angolare

$\left(\frac{360°}{T}\right)$

$\frac{d\,\text{dob}}{dt}$

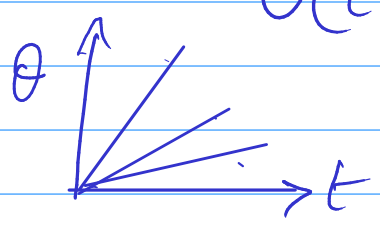
R, T, v, ν, ω

$\omega = \frac{d\theta}{dt}$

componenti

$$\begin{cases} x = R \cdot \cos(\omega t) \\ \quad = R \cdot \cos(\theta(t)) \\ y = R \sin(\omega t) \end{cases}$$

$\theta(t) = \omega \cdot t$



$r = \sqrt{x^2 + y^2} = R$

$$\begin{cases} v_x = \frac{dx}{dt} = -\omega R \sin \omega t \\ v_y = \frac{dy}{dt} = \omega R \cos \omega t \end{cases}$$

$$v = \sqrt{v_x^2 + v_y^2} = \sqrt{\omega^2 R^2 (\sin^2 \omega t + \cos^2 \omega t)} = \omega R$$

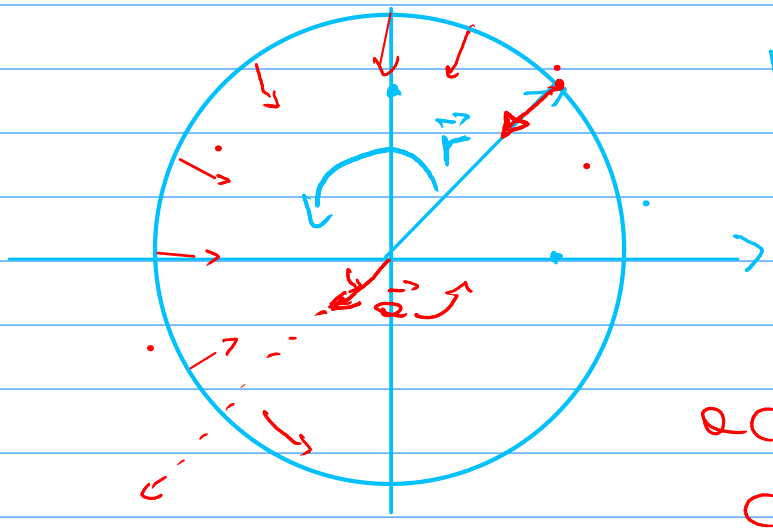
$$\begin{cases} a_x = \frac{dv_x}{dt} = -\omega^2 R \cos \omega t = -\omega^2 \cdot x \\ a_y = \frac{dv_y}{dt} = -\omega^2 R \sin \omega t = -\omega^2 y \end{cases}$$

$$a = \sqrt{a_x^2 + a_y^2} = \omega^2 R \quad !!$$

$$|\vec{F}| = a \cdot m$$

$$v = \omega R \rightarrow \omega = v/R$$

$$|\vec{F}| = m v^2/R \qquad a = \frac{v^2}{R^2} \cdot R = v^2/R$$

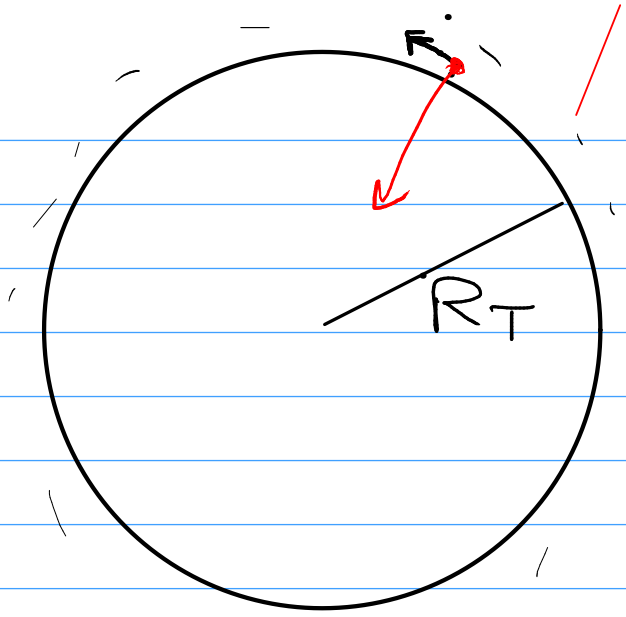


$$\vec{r} = (x, y)$$

$$\vec{a} = -\omega^2 \cdot \vec{r}$$

accelerazione centripeta !

$$\vec{F} = m\vec{a} \Rightarrow \text{forza centripeta!}$$



$|F| = mg$

$|a| = g$

$Q = \omega R$

$$g = \omega R_T$$

$Q = v^2 / R$

$$g = v^2 / R_T$$

!

1) "orbital velocity" $\rightarrow v$

2) g_{ISS} $\rightarrow$ proportional to R_T^2 / R_{ISS}^2

$\rightarrow v_{ISS}$

$\rightarrow T_{ISS}$