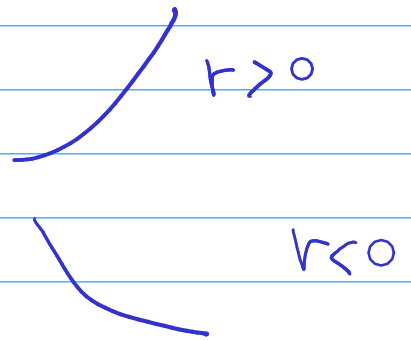


$$y = Y e^{rt} \rightarrow y = Y e^{t/\tau}$$

$$\tau = 1/r$$

~~$$y = y_0 e^{r \cdot x}$$
$$\rightarrow y(x=0) = y_0$$~~

$$y(x) = y_0 \cdot e^{r \cdot x}$$



$$\rightarrow y(x=0) = y_0$$

$$\ln y = \ln(\underline{\hspace{2cm}})$$

log_f

$$= \ln y_0 + r \cdot x$$

$$\log_f y = \log_f y_0 + r \cdot x$$

→ retta nel piano

$$x, \log_f y$$

scale log sulle ordinate
lineari: $\alpha < 0$ andamento
esponenziale

$$y = y_0 x^\alpha$$

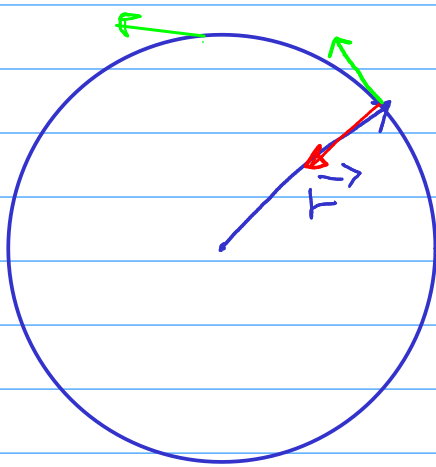
$$\alpha = 2$$

$$\alpha = 1/2$$

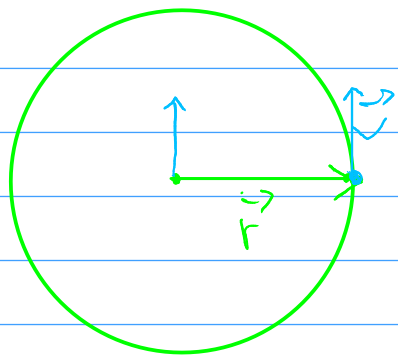
$$\log y = \log y_0 + \log(x^\alpha)$$

$$= \log y_0 + \alpha \cdot \log(x)$$

$\log y$
 $\log x$



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

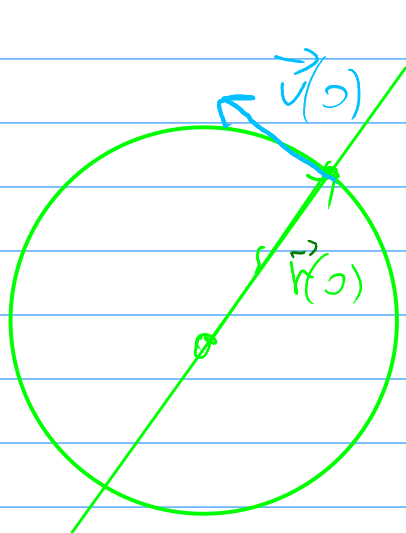


$$t=0 \begin{cases} x = R \cos(0) = R \\ y = 0 (= R \sin(0)) \end{cases}$$

$$\vec{v} = \begin{cases} v_x = -\omega R \sin \omega t & \forall t \\ v_y = +\omega R \cos \omega t \end{cases}$$

$$\vec{v}(0) = \begin{cases} v_x = 0 \\ v_y = \omega R \end{cases}$$

Exercice: $t = T/4, T/2$



$$\vec{v} \perp \vec{r}$$

$$\vec{v} \perp \vec{Q}$$

$$\vec{r} \begin{cases} x = R \cos \omega t \\ y = R \sin \omega t \end{cases}$$

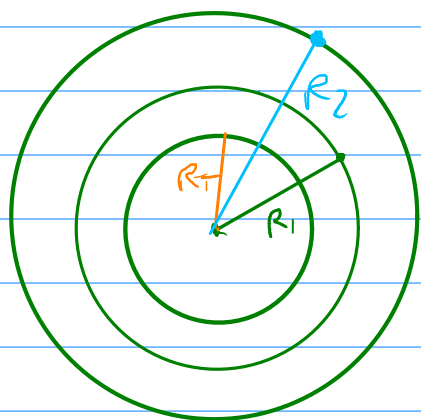
$$\vec{r} = (x, y)$$

$$\vec{v} := \begin{cases} v_x = -\omega R \sin \omega t \\ v_y = \omega R \cos \omega t \end{cases}$$

$$\vec{r} \cdot \vec{v} = x \cdot v_x + y \cdot v_y = 0 \quad \text{!}$$

$$\Rightarrow \vec{r} \perp \vec{v}$$

$$\vec{Q} \cdot \vec{v} = \dots = 0 \quad \text{!}$$



$$T^2 \propto R^3$$

$$T_1^2 = \alpha R_1^3$$

$$T_2^2 = \alpha R_2^3$$

$$\frac{T_2^2}{T_1^2} = \frac{R_2^3}{R_1^3}$$

$$\Rightarrow$$

$$T_2^2 = \left(\frac{R_2}{R_1} \right)^3 \cdot T_1^2$$

$$R_2^3 = \left(\frac{T_2}{T_1} \right)^2 \cdot R_1^3$$

$$\text{ISS} \rightarrow \left\{ \begin{array}{l} h \rightarrow R = R_T + h \\ T \end{array} \right.$$

$$\rightarrow \left\{ \begin{array}{ll} R_{\text{set-point}} & 1, \\ d_{TL} & 2, \end{array} \right.$$