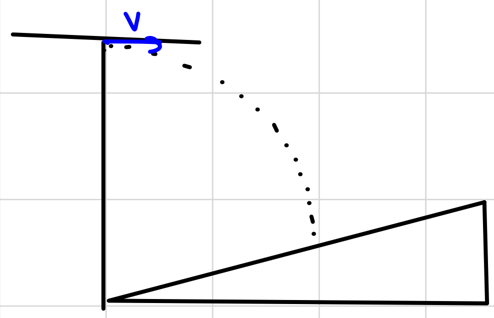
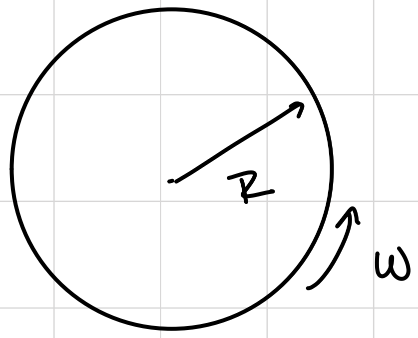
Vista lateral:



Vista en Planta:



Periodo $T \rightarrow f = \frac{1}{T}$

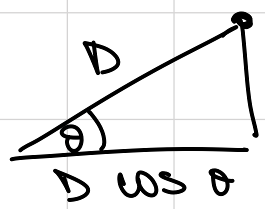
altura H

Dist D

$$\omega = 2\pi f = \frac{2\pi}{T} \longrightarrow V_T = \omega \cdot R \rightarrow R = \frac{V_T}{\omega}\ ?$$

$\hat{y}$
$$y(t) = \cancel{y_0}^{H} + \cancel{V_0 t}^{0} - \frac{1}{2} g t^2$$
$$y(t) = H - \frac{1}{2} g t^2$$

$\hat{x}$
$$X(t) = \cancel{X_0}^{0} + \cancel{V_{0x}}^{V_T} t + \frac{1}{2} \cancel{a}^{0} t$$
$$X(t) = V_T \cdot t$$
$$X(t) = (\omega R) \cdot t = \left(\frac{2\pi}{T} \cdot R\right) t$$

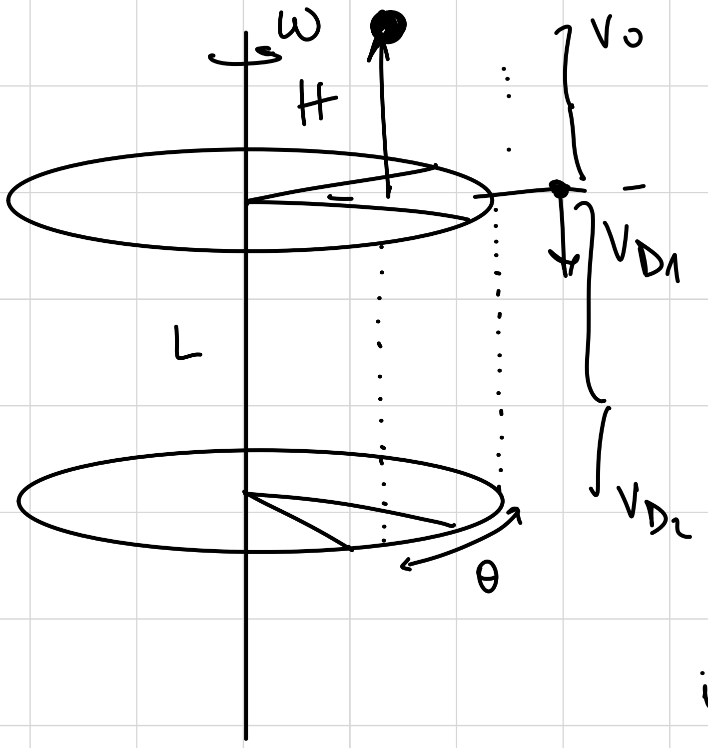


$$y(t) = H - \frac{1}{2} g t^2$$
$$\hookrightarrow y(t^*) = D \operatorname{sen}\theta = H - \frac{1}{2} g t^{*2}$$
$$t^* = \left(\frac{-2(D \operatorname{sen}\theta - H)}{g}\right)^{1/2}$$
$$t^* = \sqrt{\frac{2(H - D \operatorname{sen}\theta)}{g}}$$

$$x(t) = \frac{2\pi}{T} R\, t = V_T t$$

$$x(t^*) = D\cos\theta = \frac{2\pi}{T} R \sqrt{}$$

$$R = \frac{T D \cos\theta}{2\pi} \sqrt{\frac{g}{2(H - D \operatorname{sen}\theta)}}$$



Bolita recorra L en t^*

Donde t^* es lo que tarda D_2 en recorrer θ

i) Antes de D_1

ii) Despues de D_1

$$y(t) = y_0 + V_{0y}\,t - \frac{1}{2} g t^2$$

i)

$$y(t) - y_0 = V_{0y}\,t - \frac{1}{2} g t^2$$

$$H = 0 - \frac{1}{2} g t^2$$

$$\rightarrow V_f^2 - \cancel{V_0^2}^{\,0} = 2gd$$

$$V_{D1}^2 = 2gH$$

$$H = \frac{V_{D1}^2}{2g}$$

ii)

$$y(t) = y_0 + V_0 t - \frac{1}{2} g t^2$$

$$0 = L - V_{D1}\,t - \frac{1}{2} g t^2$$

t de D_2 en Rec θ

$$w = \frac{\theta}{t} \rightarrow t = \frac{\theta}{w} \quad \square$$

$$L - V_{D1}\cdot\frac{\theta}{w} - \frac{g}{2}\left(\frac{\theta}{w}\right)^2 = 0$$

$$V_{D1}\frac{\theta}{w} = -\frac{g}{2}\left(\frac{\theta}{w}\right)^2 + L$$

$$V_{D1} = -\frac{\cancel{w}g}{2\cancel{\theta}}\left(\frac{\theta}{w}\right)^{\cancel{2}} + \frac{Lw}{\theta}$$

Reemplazando V_{D1}

$$\sqrt{2gH} = \frac{-g\theta}{2w} + \frac{w}{\theta}L$$

$$H = \frac{1}{2g}\left(\frac{w}{\theta}L - g\frac{\theta}{2w}\right)^2 \quad \square$$