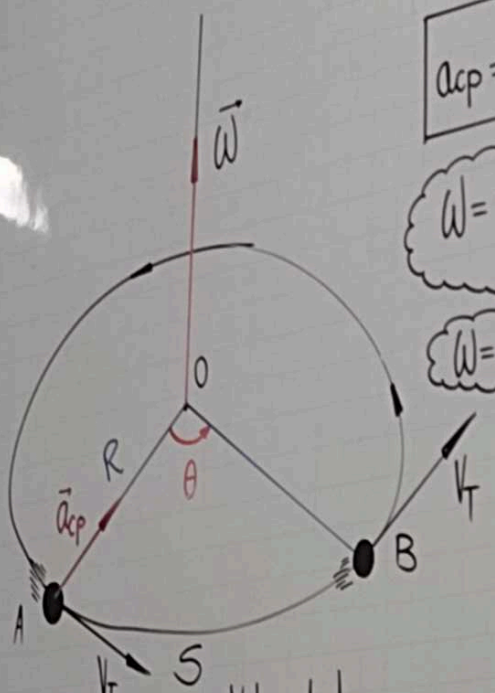
Movimiento Circular.

$a_{cp} = \omega^2 R$

$a_{cp} = \frac{V_T^2}{R}$

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

$\omega = 2\pi f$



M.C.U

- ✓ $\vec{\omega}$ se mantiene cte.
- ✓ V_T se mantiene cte. (Módulo)
- ✓ a_{cp} " " " (Módulo)

$\theta = \omega t$

$S = V_T \cdot t$

→ Periodo (T)

Tiempo de demora para dar una Sola Vuelta.

→ frecuencia (f)

Nos indica la Cantidad de Vueltas en un determinado Tiempo

$f = \frac{n^{\#} \text{ de V.}}{t}$

Desplazamientos.

① Angular (θ: rad)

① lineal. (S: m)

$S = \theta R$

Velocidades.

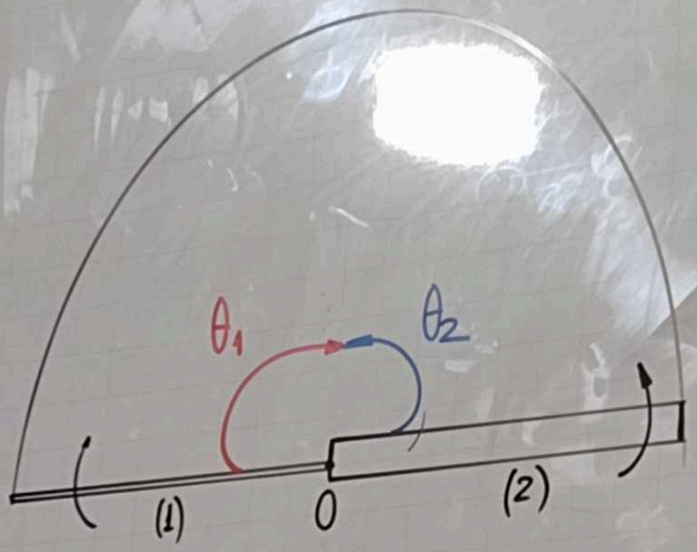
V. lineal o Tangencial (V_T: m/s)

✓ V. angular. ($\vec{\omega}$: rad/s)

$V_T = \omega R$

(22) $T_1 = 20s$ $\quad T_2 = 30s$

$\omega_1 = \frac{\pi}{10}$ rad/s $\quad \omega_2 = \frac{\pi}{15}$ rad/s



$\theta_1 + \theta_2 = 180°$

$\omega_1 t + \omega_2 t = \pi$

$\frac{\pi}{10} t + \frac{\pi}{15} t = \pi$ 1

$\frac{3t + 2t}{30} = 1$

$t = 6s$!

(23) 60 RPM

$\omega = 60 \times \left(\frac{\pi}{30}\right)$

$\omega = 2\pi$ rad/s

$t = 5s$

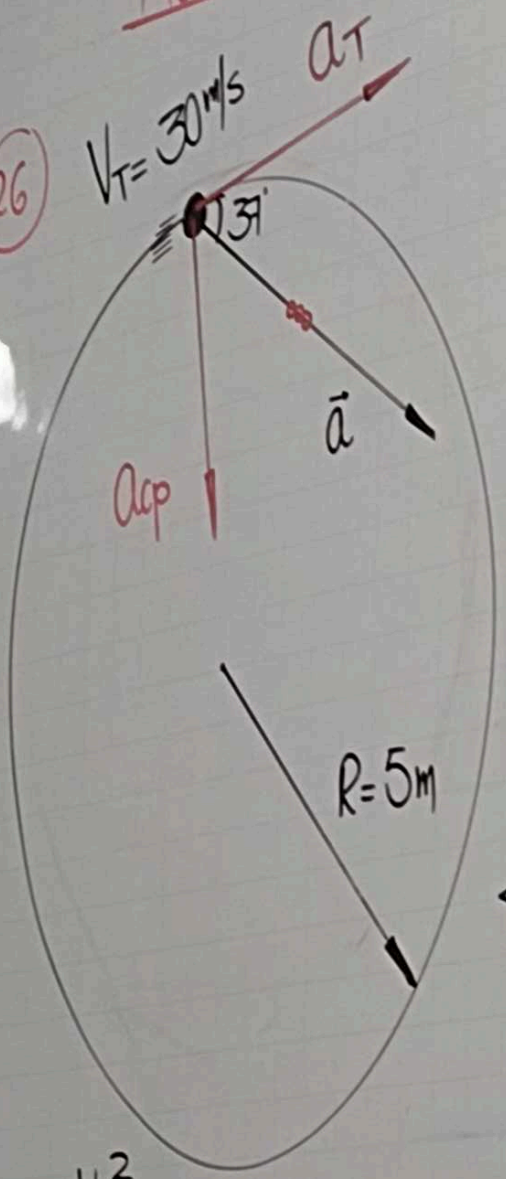
$\theta = \omega t$

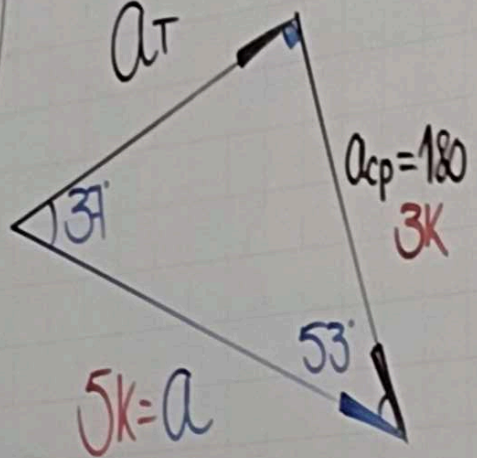
$\theta = 2\pi(5)$

$\theta = 10\pi$ rad.

Movimiento Circular.

(26) $V_T = 30\ m/s$



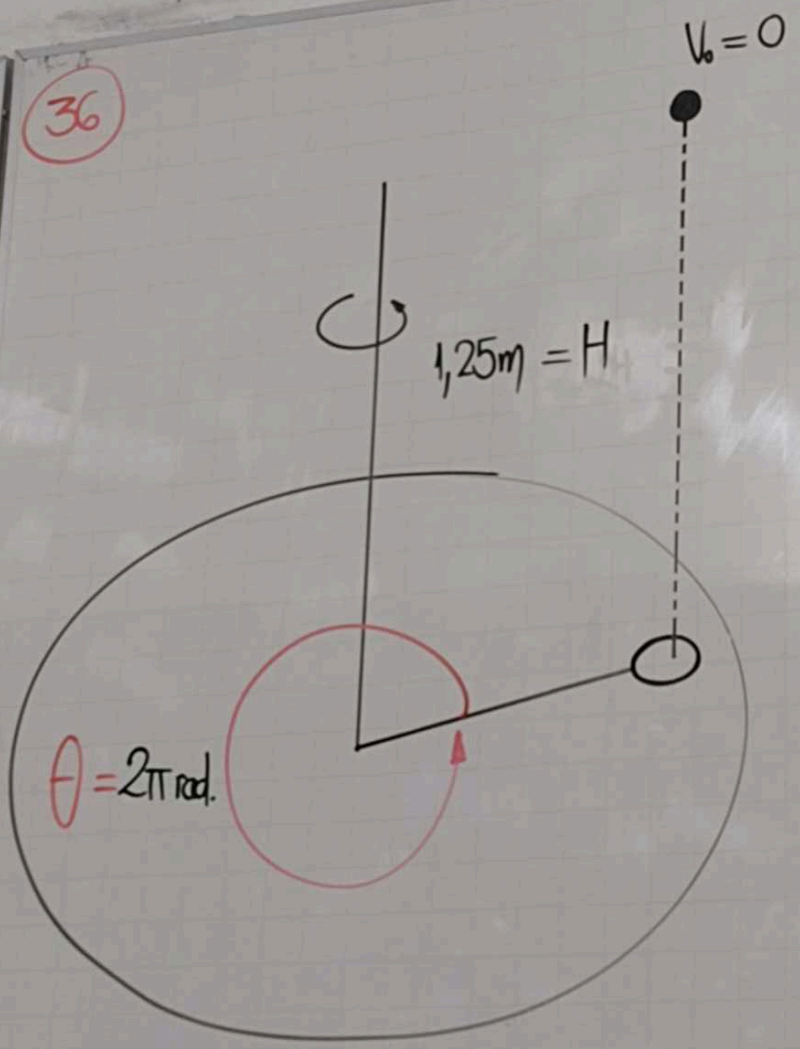


$$a_{cp} = \frac{V_T^2}{R}$$

$$= \frac{(30)^2}{5} = 180\ m/s^2$$

$$a = 300\ m/s^2$$

36



$$h = \cancel{V_0 T} + \frac{1}{2} g T^2$$

$$25\frac{125}{100} = 5T^2$$

$$T = \frac{1}{2}\,s$$

$$\theta = WT$$

$$2\pi = W \cdot \frac{1}{2}$$

$$W = 4\pi\ rad/s$$

(27) 1era Vuelta.

$\omega_0 = 0$ $\theta = 2\pi$ rad.

α

t

2da Vuelta.

$\theta = 2\pi$ rad

$T = 1s$

α

$\theta = \omega_0 t + \frac{1}{2}\alpha t^2$

1era → $2\pi = \frac{1}{2}\alpha T^2$

2da → $4\pi = \frac{1}{2}\alpha (T+1)^2$

$\frac{1}{2} = \frac{T^2}{(T+1)^2}$

$\sqrt{(T+1)^2} = \sqrt{2T^2}$

$T+1 = \sqrt{2}\,T$

$1 = (\sqrt{2}-1)\,T$

$\frac{1}{(\sqrt{2}-1)}\frac{(\sqrt{2}+1)}{(\sqrt{2}+1)} = T$

$1{,}41\,(\sqrt{2}) + 1 = T$

$T = 2{,}41\,s$ ✓

$a_{cp} = 180$

3K

(23)

$\omega =$

ω

t

θ

θ

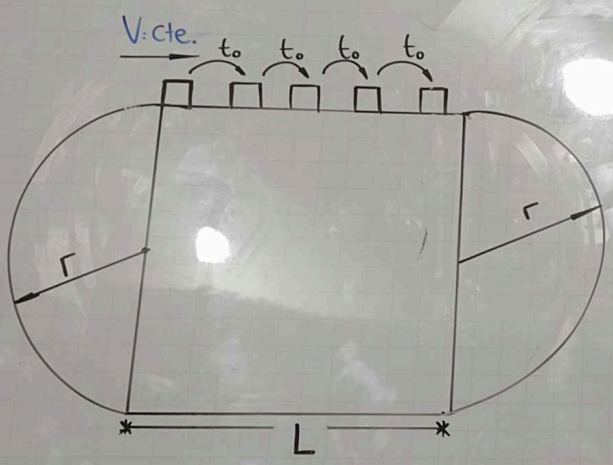
θ

d

θ

PM
$\frac{\pi}{30}$)
rad/s

(24)



$d = Vt$

$L = V \cdot 4t_o$

$V = \frac{L}{4t_o}$

$V_T = Wr$

$\frac{L}{4t_o} = Wr$

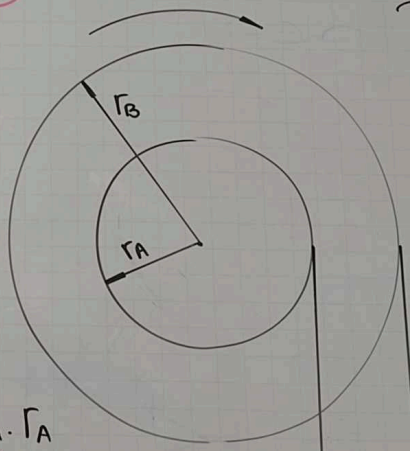
$\frac{L}{4rt_o} = W$ //

(25)

$R_A = 20\,cm$

$R_B = 30\,cm$

$W = 4\,rad/s$

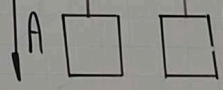


$V_A = W_A \cdot r_A$

$= (4)(20)$

$V_A = 80\,cm/s$

$80cm/s = V_A$



$V_B = W_B \cdot R_B$

$(4)(30)$

$V_B = 120\,cm/s$

$V_B = 120\,cm/s$

$V_{A/B} = 40\,cm/s$ //