MAGNITUDES FÍSICAS

M → MASA (kg)
I → INT. DE LA CORRIENTE ELÉCT. (Amperio = A)
L → LONGITUD (m)
T → TIEMPO (s)
θ → TEMPERATURA (Kelvin = K)
N → CANTIDAD DE SUSTANCIA (mol)
J → INT. LUMINOSA (candela = cd)

MAG. AUXILIARES

ÁNGULO PLANO (rad)
ÁNGULO SÓLIDO (Sr)

MAG. ESCALARES

✓ TODAS LAS FUNDAM.
✓ ÁREA $= L^2$
✓ VOLUMEN $= L^3$
DENSIDAD $= ML^{-3}$
CAUDAL $= L^3T^{-1}$
RAPIDEZ $= LT^{-1}$
PERIODO $= T$
FRECUENCIA $= T^{-1}$
TRABAJO, ENERGÍA, CALOR $\} ML^2T^{-2}$

MAG. VECTORIALES

✓ TORQUE O MOMENTO DE UNA FUERZA $= ML^2T^{-2}$
✓ CUPLA O PAR $= ML^2T^{-2}$
✓ VELOCIDAD LINEAL $= LT^{-1}$
VELOC. ANGULAR $= T^{-1}$

ACELERACIÓN LINEAL $= LT^{-2}$
ACEL. ANGULAR $= T^{-2}$
FUERZA $= MLT^{-2}$
CANTIDAD DE MOVIM. $= MLT^{-1}$
IMPULSO $= MLT^{-1}$

✓ $1m = 10^2 cm$
$1cm = 10^{-2} m$

✓ $1Kg = 1000g$

$1micro = 10^{-6}$
$1micra = 10^{-6} m$

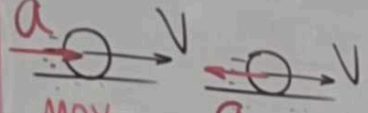
MRU

- Veloc. constante $\vec{a}=\vec{0}$
  - Rapidez $=|\vec{v}|=$ const.
- $d=v.t$
- $Te=\frac{d}{V_1+V_2}$
- $Ta=\frac{d}{V_1-V_2}$
- $\vec{V}_{eloc.\,Media}=\frac{\vec{d}_{esp.}}{t_{total}}=\frac{\Delta\vec{x}}{\Delta t}$

$$\text{Rapidez Media}=\frac{e}{t_{total}}$$

MRUV:

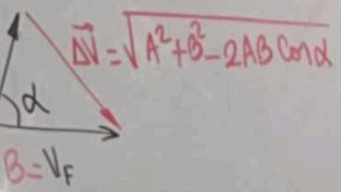
$\vec{a}=$ Const.



MOV. ACELERADO MRUA

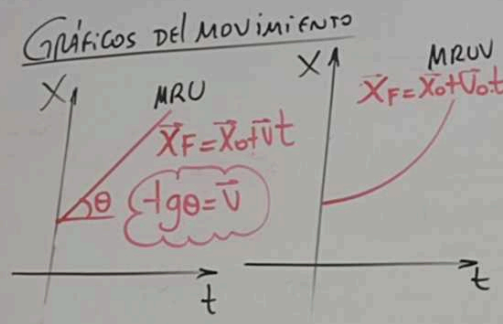
MOV. DESACELERADO MRUD

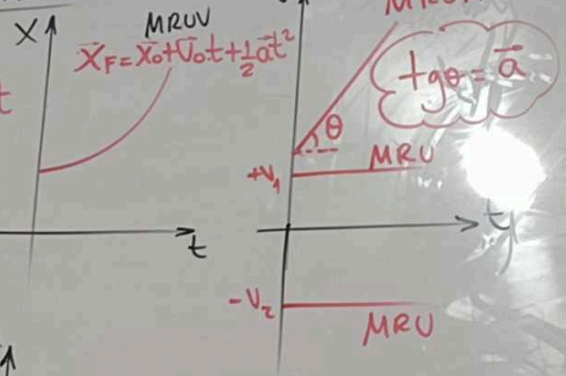
$$\vec{a}_m=\frac{\Delta\vec{V}}{\Delta t}$$

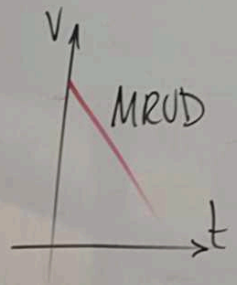


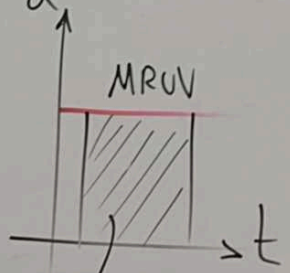
1) $V_F=V_0\pm a.t$
2) $V_F^2=V_0^2\pm 2a.d$
3) $d=V_0.t\pm\frac{1}{2}at^2$
4) $d=\left(\frac{V_0+V_F}{2}\right)t$
5) $d_n=V_0\pm\frac{1}{2}a(2n-1)$

Gráficos del movimiento

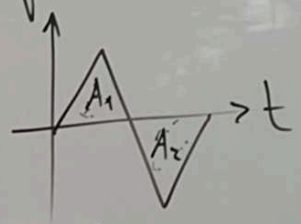








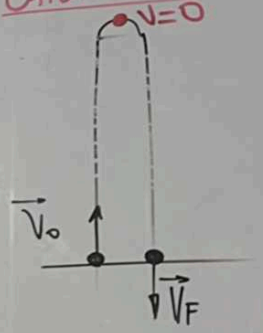
$\vec{A}_{RE_1} = \Delta\vec{V} = \vec{V}_F - \vec{V}_0$



$\vec{d}_{desp.} = A_1 - A_2$

$e = A_1 + A_2$

Movimiento vertical en caída libre (M.V.C.L)



$|\vec{V}_0| = |\vec{V}_F|$

$a = g$

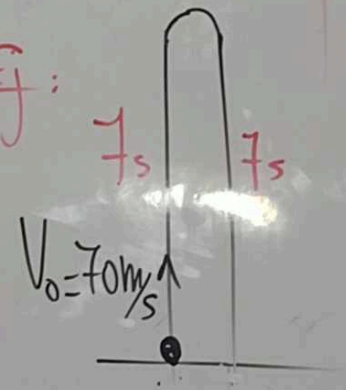
$d = h$

$T_{vuelo} = \frac{2V_0}{g}$

$H_{max} = \frac{V_0^2}{2g} = \frac{1}{2}gt^2_{subida}$

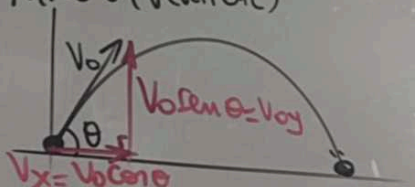
$H_{max} = \frac{1}{8}gT^2_{vuelo}$

Ej:



MOV. PARABÓLICO EN CAIDA LIBRE: (M.P.C.L)

MRUV (VERTICAL)



MRU (Horiz.)

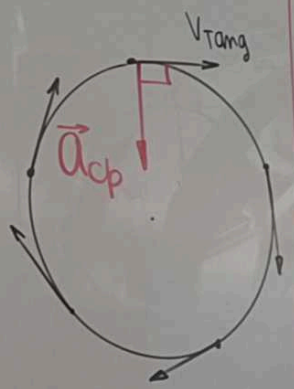
$$T_{vuelo} = \frac{2V_{0y}}{g} = \frac{2V_0 \operatorname{sen}\theta}{g}$$

$$D = V_x \cdot T_{vuelo}$$

$$D = V_0 \cos\theta \left(\frac{2V_0 \operatorname{sen}\theta}{g}\right) = \frac{2V_0^2 \operatorname{sen}\theta \cdot \cos\theta}{g}$$

$$D = \frac{V_0^2 \operatorname{sen} 2\theta}{g}$$

M.C.U



$\vec{V}_{Tang} = \text{VARIABLE}$

$|\vec{V}_{Tang}| = \text{CONST.}$

$\vec{\omega} = \text{CONST.}$

PERIODO (T) = CONST.

FRECUENCIA (f) = CONST.

$|\vec{a}_{cp}| = \text{CONST.}$

1) $L = \theta R$

2) $\omega = \frac{\theta}{t}$

3) $V_T = \frac{L}{t}$

4) $V_T = \omega R$

5) $\omega = \frac{2\pi}{T} = 2\pi f$ → Hz

$1\,RPM = \frac{1\,rev}{min} = \frac{2\pi\,rad}{60\,s}$

$1\,RPS = 1\,Hz = \frac{1\,rev}{s} = \frac{2\pi\,rad}{s}$

6) $a_{cp} = \frac{V_{Tang}^2}{R} = \omega^2 R$

MC.U.V:

$|\vec{a}_{Tang}| = \text{CONST.}$

$\vec{\alpha} = \text{ACEL. ANGULAR} = \text{CONST.}$

1) $V_F = V_0 \pm a_{Tan} t$

2) $V_F^2 = V_0^2 \pm 2 a_{Tan} L$

3) $L = V_0 t \pm \frac{1}{2} a_{Tan} t^2$

4) $L = \left(\frac{V_0 + V_F}{2}\right) t$

5) $L_n = V_0 \pm \frac{1}{2} a_{Tan} (2n-1)$

Leyes de Newton

1ª Ley: Equilibrio
- Reposo
- V=Const.

$\vec{a} = \vec{0}$

1° Condición: $\sum \vec{F} = \vec{0}$

2° Condición: $\sum \vec{M}_o = \vec{0}$

2ª Ley:

$\vec{a} = \frac{\vec{F}_{Re}}{m}$

$\vec{F}_{Re} = m\vec{a}$

Dinámica lineal

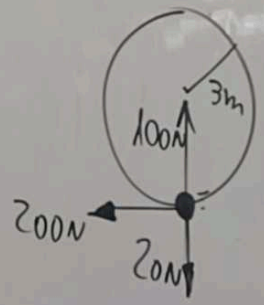
$\vec{F}_{Re} = m\vec{a}$

$\sum F_{\text{a favor del mov.}} - \sum F_{\text{contra el mov.}} = ma$

Dinámica circular → $F_{tang} = ma_{tang}$

$\vec{F}_{cp} = \sum F_{\text{radiales}}$

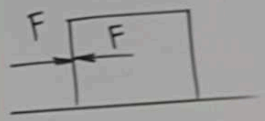
$F_{cp} = \sum F_{\text{apuntan al centro}} - \sum F_{\text{salen del centro}}$



$F_{cp} = ma_{cp}$

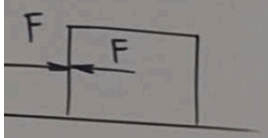
$80 = 2.\frac{V^2}{R}$

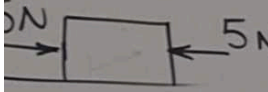
3ª Ley:



$\sum F = 0$ 1ERA Ley

3ERA Ley:





$\Sigma F = 0$ 1ERA Ley

TRABAJO

$W_F = F \cdot d \cdot \cos\theta$

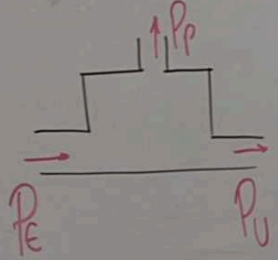
$W_F = F_{//} \cdot d_{//}$

POTENCIA

$P = \frac{W}{t}$

$P = F \cdot V$

$P_{ENTREG.} = P_{ÚTIL} + P_{PERDIDA}$



$W_{NETO} = F_{RESULT.} \cdot d$

$W_{NETO} = W_{F_1} + W_{F_2} + \dots + W_{F_n}$

$W_{NETO} = \Delta E_{CINÉTICA}$

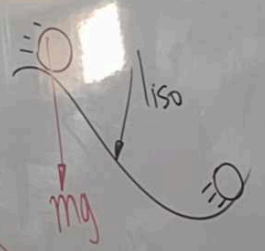
$E_{CINÉTICA} = \frac{1}{2} m \cdot V^2$

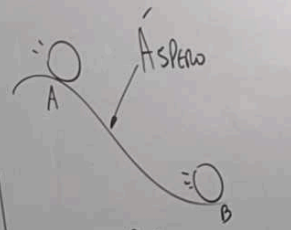
$E_{POTENCIAL\ GRAVIT.} = mgh$

$E_{POT.\ ELÁST.} = \frac{1}{2} K x^2$

$E_{MEC} = \frac{1}{2} m v^2 + mgh + \frac{1}{2} K x^2$

$U_{POT.\ ELÉCT.} = K \frac{q_1 \cdot q_2}{d}$





$W_{ROZ} = (E_M)_B - (E_M)_A$

$-f_{ROZ} \cdot d = (E_M)_B - (E_M)_A$

FUERZAS CONSERVATIVAS = P_{ESO}, $F_{ELÁST.}$, $F_{ELÉCT.}$

HIDROSTÁTICA:

1) $P = \frac{F_\perp}{A}$

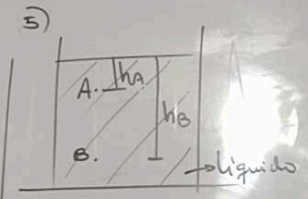
2) $D = \frac{m}{V}$

3) $\gamma = \frac{\text{Peso}}{\text{Volumen}}$

↑ Peso específico

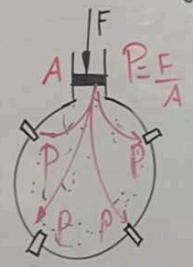
4) $P_{hid} = D_{liq} \cdot g \cdot h$

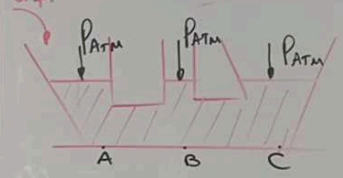
5)



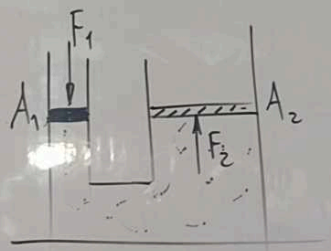
$P_B - P_A = D_{liq} \cdot g \cdot (h_B - h_A)$

6)

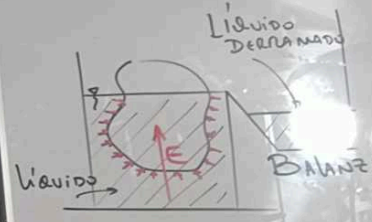




$P_A = P_B = P_C$



$$\frac{F_1}{A_1} = \frac{F_2}{A_2} \rightarrow \frac{F_1}{F_2} = \frac{A_1}{A_2} = \left(\frac{R_1}{R_2}\right)^2 = \left(\frac{diam_1}{diam_2}\right)^2$$



E = Peso del líq. derramado

$E = D_{liq} \cdot g \cdot Vol.\ Sumergido$

E = Peso Real − Peso Aparente

$Peso = mg = D_c \cdot V_c \cdot g$