dicas do vestibular

Sistema de Ensino Energia®

Assista à **videodica** deste encarte em nosso *site*: **www.energia.com.br**.

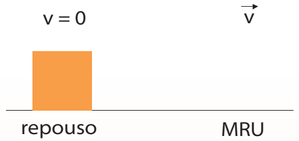
Elaboradas pelo professor Jerry do **Sistema de Ensino Energia**.

Física: Cinemática

Primeira lei de Newton (inércia)

$\vec{F_r} = 0$ { repouso / MRU

$\vec{v}$ = constante



Segunda lei de Newton

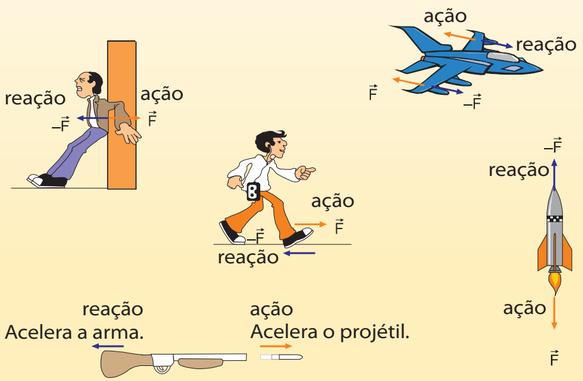
$\vec{F_r} = m \cdot \vec{a}$

zero → constante

zero → constante → v = constante

zero → constante → v = variável

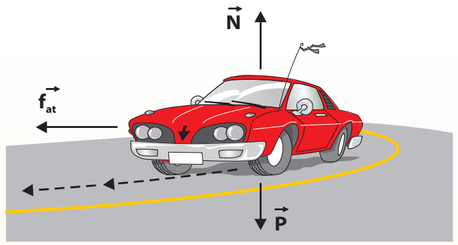
Terceira lei de Newton (ação e reação)



Força de atrito

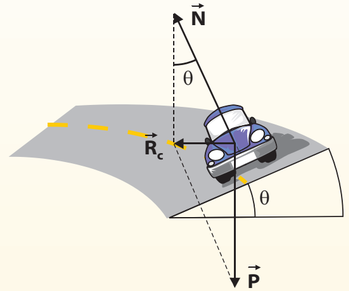
$f_{at} = \mu \cdot N$

$\mu_e > \mu_c$



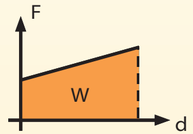
Resultante centrípeta

$F_c = \frac{m \cdot v^2}{R}$



Trabalho

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

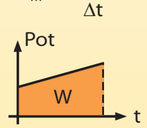


W ➡ J

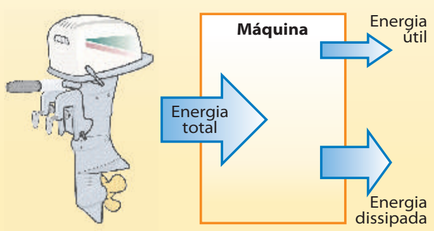
TEC : $W_{Fr} = \frac{m \cdot v^2}{2} - \frac{m \cdot v_0^2}{2}$

Potência

$Pot_m = \frac{W_F}{\Delta t}$



Pot ➡ watt

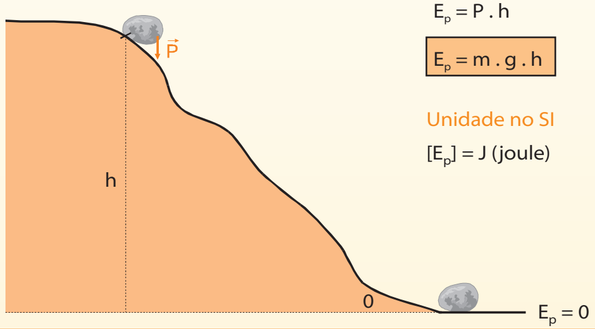


$P_t = P_u + P_d$

Energia cinética

$E_c = \frac{m \cdot v^2}{2}$

Energia potencial gravitacional



$E_p = W_p$

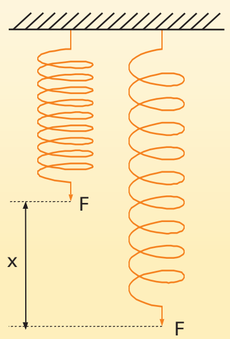
$E_p = P \cdot h$

$E_p = m \cdot g \cdot h$

Unidade no SI

$[E_p]$ = J (joule)

Energia potencial elástica



F = k . x (leis de Hook)

Unidades no S.I.

[F] = N
[x] = m
[k] = N/m

$E_{pe} = \frac{k \cdot x^2}{2}$

Unidade no SI

$[E_{pe}]$ = J (joule)

Energia mecânica

$E_m = E_c + E_p$

$E_{mi} = E_{mf}$

$E_{ci} + E_{pi} = E_{cf} + E_{pf}$

$E_{mi} = E_{mf}$

$E_{pi} = E_{cf}$

$m \cdot g \cdot h = \frac{m \cdot v^2}{2}$

$g \cdot h = \frac{v^2}{2}$

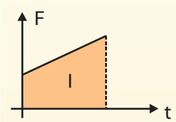
$v = \sqrt{2 \cdot g \cdot h}$

Quantidade de movimento

$\vec{q} = m \cdot \vec{v}$

Impulso

$\vec{I_{fr}} = \vec{F_r} \cdot \Delta t$



Teorema do impulso

$\vec{I_{Fr}} = \Delta\vec{q}$

$\vec{I_{Fr}} = m \cdot \vec{v} - m \cdot \vec{v_0}$

Sistema isolado

$\Sigma F_E = 0$

$\Delta\vec{q} = 0$

Colisões

	Elástico	Inelástico	Perfeitamente inelástico
Coeficiente de restituição	e = 1	0 < e < 1	e = 0
Energia cinética	Conservação	Dissipação	Máxima dissipação
Quantidade de movimento	Conservação	Conservação	Conservação

$e = \frac{V_{rel\ afast}}{V_{rel.\ aprox.}}$