$9.81\ m/s^2$

$v = 936\ Km/h$ $\quad 936\ Km/h \left(\frac{1h}{3600s}\right)\left(\frac{1Km}{1000}\right)$

$m/2\ kg$ $\quad (2)(9.81)(12)$

$6 = .7m$

$v = 4.6\ m/s$ $\quad t = \frac{4.6 - 0}{9.81}$

$m = 3\ kg$ $\quad A\ EP\ 58.86$ $\quad C = 29$

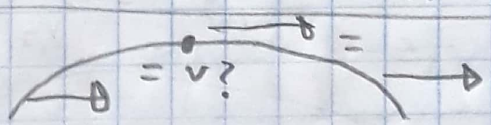
$a = \frac{F}{m}$ $\quad \frac{100\ N}{}$ $\quad 17 = 5.88$

$18 = 5.55$

$16 = 6.25$

$V = ?$

$\theta_y\ 84°$

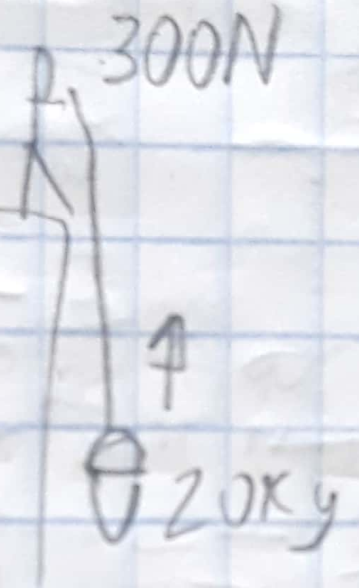


ΔV $\quad t = 2s$ $\quad a?$

$V_0 = 23.8\ m/s$

$V_f = 35.7\ m/s$

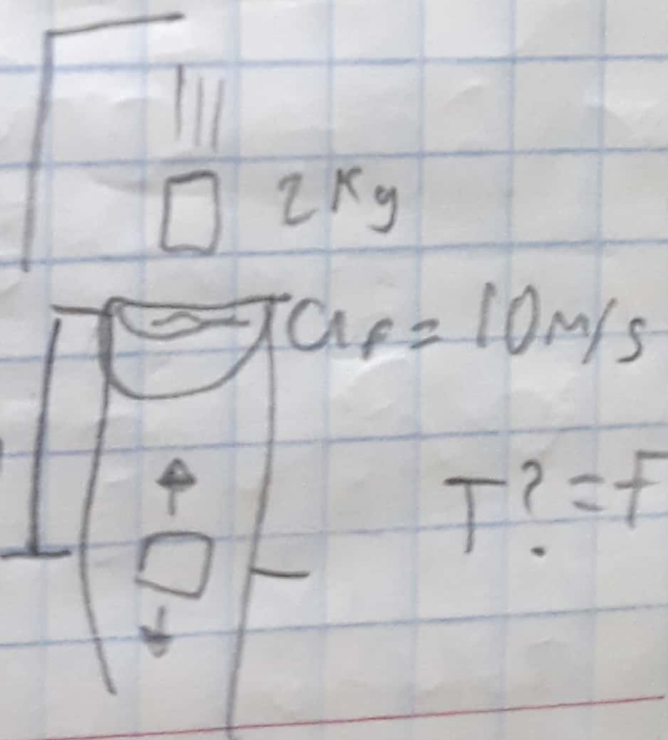
= 6400



$M_t = 10$ $M_A = 6$ $M_B = 4$ Ky

F = 10N

FFt = 3



F = ma

T? = F x d

F = 150N →

m = 30 kg

a = 3 m/s²

F_F = ?

$F - F_F = ma \quad + F_F = F - (ma)$

g = 4g

t = ?

V_x =

V_y = 10 m/s

$\frac{2V_y}{g} \quad \frac{20}{40}$

$r_{inst} = \lim_{\Delta t \to 0} \frac{\Delta x}{\Delta t} = \frac{dx}{dt} = v_{inst.}$

$a_{med.} = \frac{\Delta V_x}{t}$

$r_{med.} = \frac{x_2 - x_1}{t_2 - t_1}$

$a_{inst.} = \lim_{\Delta t \to 0} \frac{\Delta V_x}{\Delta t} = \frac{dV_x}{dt}$

Formulario:

altura: $h = \frac{1}{2} a t^2$

$F_{net} = \Sigma F = 0$ ← equilibrio mecanico

$r = \frac{d}{t}$

$r_{med} = \frac{\Sigma d}{t}$

$d = r \times t$ (rt)

$V_F = V_i + at$

$a = \frac{\Delta v}{t} = \frac{V_f - V_0}{t}$

$V = a \times t$ (at)

caida libre: (altura)
- $V = gt$
- $d = 1/2\, g t^2$
- $t = \sqrt{\frac{2d}{g}}$

$y = y_0 + V_f t$; $2ax$

$V_{prom} = \frac{1}{2} g t$

regla del paralelogramo

$a \sim F_{net}$

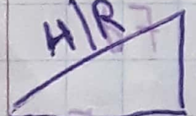
$Peso = mg$

$a \sim \frac{1}{masa}$

$F = ma$

$a = \frac{F}{m}$

$a \simeq \frac{F_{net}}{m} = \frac{mg - Resistencia}{m}$



CA ↑ y

CO X ↑

$\frac{A_x}{A} = \cos\theta$

$A_x = A\cos\theta$

$\frac{A_y}{A} = \text{Sen}\,\theta$

$A_y = A\,\text{Sen}\,\theta$

$\theta = \tan^{-1} \frac{A_y}{A_x}$

$\tan\theta = \frac{A_y}{A_x}$

$\vec{A} = A_x \hat{\imath} + A_y \hat{\jmath}$

$\vec{A}_x = A_x \hat{\imath}$

$\vec{A}_y = A_y \hat{\jmath}$

$A = \sqrt{A_x^2 + A_y^2}$ (R; x $\hat{\imath}$; y $\hat{\jmath}$)

Cantidad de mov.

$CDM = mv$

$Impulso = Ft = \Delta(mv)$

Posición:

$x = x_0 + V_{x0}t + \frac{1}{2} a_x t^2$ (a = const)

$V_x^2 = V_{0x}^2 + 2a(x - x_0)$

$x - x_0 = \left(\frac{V_0 + V}{2}\right) t$ (a = const)

Cantidad de mov. = mv

impulso = Ft

$Ft = \Delta(mv)$

$F = \frac{m\Delta v}{t}$

Choques:

inelastico = $m_1 v_1 + m_2 v_2 = m_f v_f$

elastico = $m_1 v_1 + m_2 v_2 = m_1 v_1 + m_2 v_2$

Trabajo: $T = F \times d = Fd$ $(Nm) = (J)$

Potencia = $\frac{\text{Trabajo}}{\text{intervalo de tiempo}} = \frac{T}{t}$ $(746\,w = 1\,Hp)$ Horse power

h = altura

Energía potencial gravitacional $EP_g = mgh$

Energía cinetica = $EC = \frac{1}{2} m v^2 \sim T = Fd$

Teorema del trabajo y energía $T = \Delta EC = EC_2 - EC_1$

maquinas = $(T_1 = T_2) = ((Fd)_0 = (Fd)_F)$

Eficiencia = $\frac{\text{energía útil}}{\text{energía alimentada}}$

$N = Kg\ m/s^2$

Momento $p = mv$

Caída libre

$V_f = V_0 + gt$

$V_f = V_0^2 + 2gh$

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

$h = \left(\frac{V + V_0}{2} t \right)$

$t = \frac{V - V_0}{g}$

$t = \sqrt{\frac{2h}{g}}$

Rapidez Tangencial

$V \sim r w$

r = radio

w = rapidez rotacional

Centro de masa

$$X_{cm} = \frac{m_1 x_1 + m_2 x_2 + m_3 x_{3 \cdots}}{m_1 + m_2 + m_{3 \cdots}}$$

Fuerza centrípeta $F = mV^2/r$ V = rapidez tangencial

Cantidad de movimiento angular = inercia de rotación x velocidad de rotación $= mVr$

Momento de torsión = brazo de palanca x fuerza

Proyectiles:

$x = (V_0 \cos \alpha_0) t$ (lejos →)

$y = (V_0 \operatorname{sen} \alpha_0) t - \frac{1}{2} g t^2$ (alto ↓)

$r = \sqrt{x^2 + y^2}$

$V = \sqrt{V_x^2 + V_y^2}$

$V_x = V_0 \cos \alpha_0$

$V_y = V_0 \operatorname{sen} \alpha_0 - gt$