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Primer Esercicios

1- A. Si graficamos la ecuaciá no cambia, es una recta

2- A. Gracias aque es igual a la gravedad 9.8 lm/s

3- C. Porque la grapica corta en eso Punto

4- C. 3ra ley de newton: el suelo porce una fuerza igual para hacia delante sobre el pie

5- a. la inercia de un cuerpo depende de su forma

6- A. Se conserva la cantidad de movimiento

7. A. Son dos tipos de energia potencia total

8- A. hay desplazamiento con el trabajo

9- C

10- A

Ejercicios

1 $m = 2kg$

$V = 3\ m/s$

$F = 0 ; 6 = 0, 6 = 5$

$I = ?$

$VF = ?$

De 0 a 2s

$$I = \int F\,dt\ ;\ I = \frac{(2)(4)}{2} = 4\ N \cdot S$$

De 2 a 3

$$I = \int_2^3 F\,dt = \quad I = \frac{(3-2)(4)}{2} \quad N \cdot S$$

de 3 a 5

$$I = \int_3^5 F\,dt = I = \frac{(5-3)(4)}{2} = 4\ N \cdot S$$

$$It = 4 + 4 + 4 = 12\ \frac{kg}{mS}$$

$$F_{pm} = \frac{12}{5} = 2.4N$$

Para la velocidad

$F = ma$

$\frac{2.4}{2} = a$; $a = 1.2\ m/s^2$

$VF = Vo + a \cdot t$; $VF = 0 + (1.2)(5)$

$VF = 6\ m/s$

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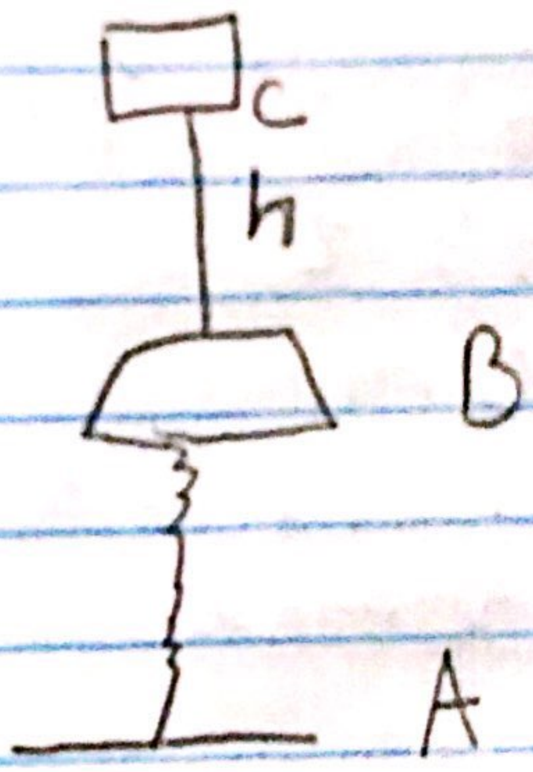
2. Datos

$K = 400\ N/m$

$x = 0.20\ m$

$m = 0.56\ g$

$g = 9.8\ m/s^2$



Resolución

$VE = \frac{1}{2} K x^2$; $Up = m\ g\ h$

$mgh = \frac{1}{2} K x^2$

$h = \left(\frac{1}{2} K x^2\right) \cdot \frac{1}{mg}$

$h = \left(\frac{1}{2}(400)(0.2)^2\right) \cdot \left(\frac{1}{(0.5)(9.8)}\right)$

$h = 1.63\ m$

3

Datos

$V = 100\ m/s$

$a = -5\ m/s^2$

$VF = 0$

$XF = ?$

$$t = \frac{VF - V_0}{a}\ ;\ t = \frac{0 - 100}{-5} = 20\ s$$

$$x = V_0 t + \frac{1}{2} a t^2\ ;\ x = 100(20) - \frac{1}{2}(5)(20)^2$$

$x = 1000\ m$

$x > x\ max$

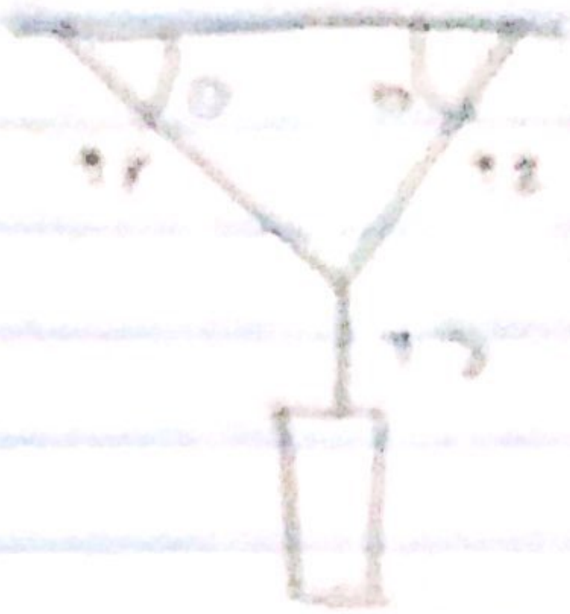
Por lo que su pista no da

4. $w = 196\ N$

$g = 9.8\ N/$

$\theta_1 = 40°$

$\theta_2 = 60°$

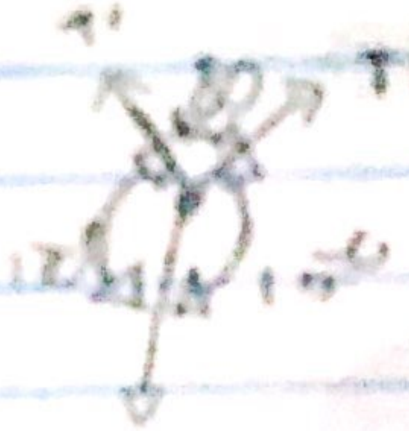


DCL 1

$\Sigma F = 0$

$T_3 = 196\ N$

DCL 2



$\frac{T_3}{\sin 80} = \frac{T_1}{\sin 130}$; $T_1 = \frac{T_3 \cdot \sin 130}{\sin 80}$

$T_1 = 152\ N$

$\frac{T_3}{\sin 80} = \frac{T_2}{\sin 150}$; $T_2 = \frac{196}{\sin 80} \cdot \sin 150$

$T_2 = 99.51\ N \leftarrow$

$\sum F = ma$

$T_1 + T_2 + T_3 = ma$

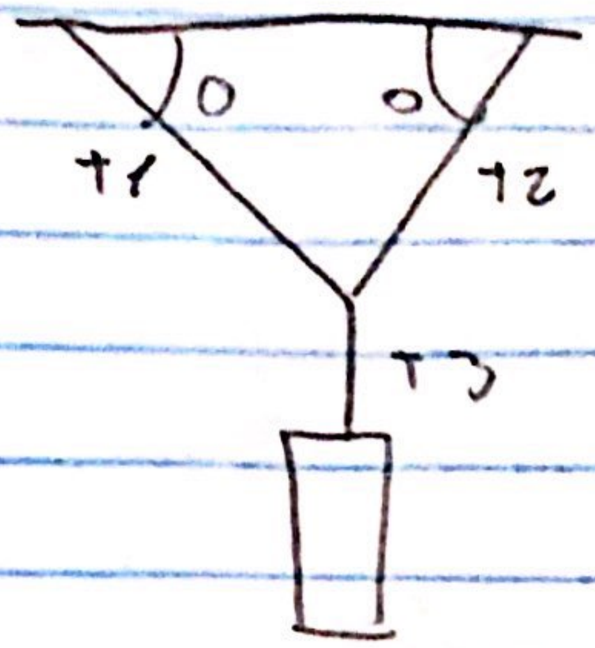
$T99.51 + 196 + 152 = \frac{196}{9.8} \cdot a$

4. $w = 196\,N$

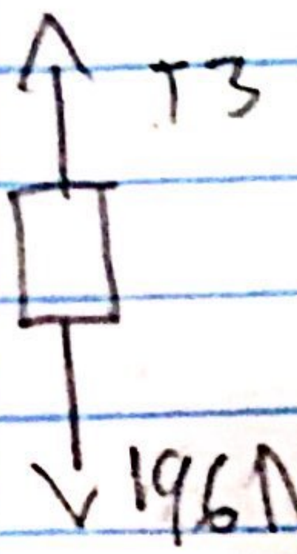
$g = 9.8\,N/$

$\theta_1 = 40°$

$\theta_2 = 60°$



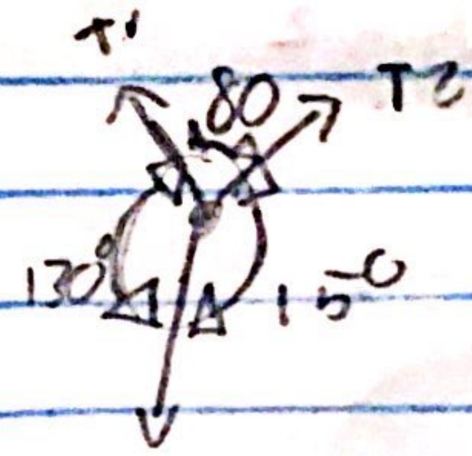
DCL 1



$\Sigma F = 0$

$T_3 = 196\,N$

DCL 2



$\frac{T_3}{Son80} = \frac{T_1}{Son130}$; $T_1 = \frac{T3 \cdot Son\,130}{Sen\,80}$

$T_1 = 152\,N$

$\frac{T_3}{Son80} = \frac{T_2}{Son150}$; $T_2 = \frac{196}{Son80} \cdot Son\,150$

$T_2 = 99.51\,N \leftarrow$

$\sum F = ma$

$T_1 + T_2 + T_3 = ma$

$T99.51 + 196 + 152 = \frac{196}{9.8} \cdot a$

$$447.51 = 20a$$

$$a = \frac{447.51}{20}$$

$$a = 22.38\ m/s^2$$

Punto C - D

$$\xi c = \xi pc$$

$$102.85 = \frac{1}{2} k x^2$$

$$\frac{2(102.85)}{1300\ N/m} = x$$

$$x = 0.4\ m$$

5. Datos

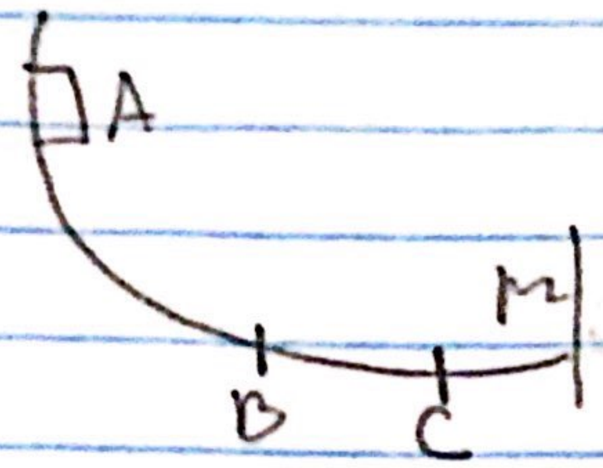
$\mu k = 0.3$

$BC = 5m$

$h = 5m$

$m = 3.0kg$

$K = 1300$



$mgh = Ec$

$(3)(9.8)(5) = 147J$

Punto B-C

Velocidad al entrar

$Ec = \frac{1}{2} mV^2$

$V^2 = \sqrt{\frac{2Ec}{m}}$; $V = \sqrt{\frac{2(147)}{3}} = 9.9 m/s$

$F_r = (3)(9.81)(0.3) = 8.83 N$

$W_r = 8.83 \cdot 5$

$W = 44.15 J \Rightarrow EcF - E_4 = -WF_{mc}$

$EcF = 147 - 44.15$

$EcF = 102.85$

6 $t = \frac{\sqrt{2h}}{g}$

$t = \frac{\sqrt{2(90m)}}{9.8}$

$t = 4.285$

$V_y = -gt$

$V_y = (-9.8 m/s) \cdot (4.28)$

$V_y = 41.94 m/s$

$V_x = d / t$

$V_x = \frac{75 m}{4.285}$

$V_x = 17.52 m/s$