

UDS

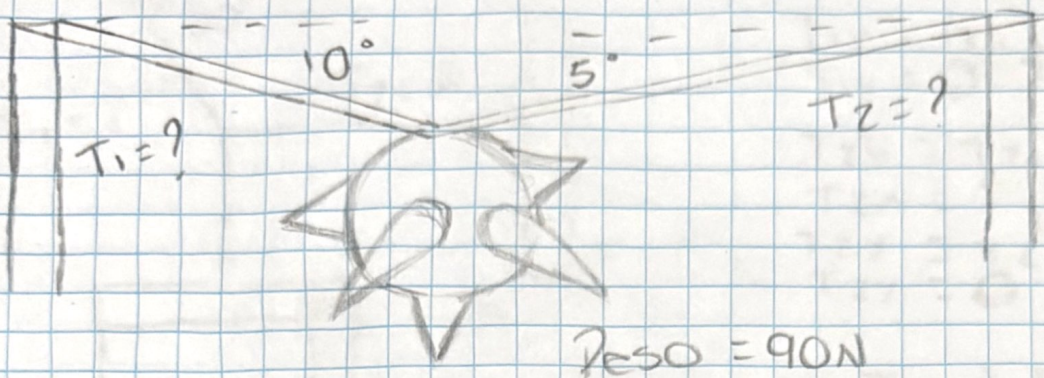
Física

4to cuatrimestre

Euridice Krissel Solórzano Vázquez

Ejercicio 1

1: Una pñata que pesa 90N se suspende de dos postes con cuerdas, como se muestra en la figura: calcula la tensión de las cuerdas.



$$T_{1x} = T_1 \cos 170$$

$$T_{1x} = -0.9$$

$$T_{1y} = T_1 \sin 170$$

$$T_{1y} = 0.17$$

$$T_{2x} = T_2 \cos 5$$

$$T_{2x} = 0.9$$

$$T_{2y} = T_2 \sin 5$$

$$T_{2y} = 0.08$$

$$\sum F_x = 0$$

$$T_{1x} + T_{2x} = 0$$

$$-0.9 + 0.9 = 0$$

$$\sum F_y = 0$$

$$T_{1y} + T_{2y} = 90$$

$$0.17 + 0.08 = 90N$$

$$(-0.98 T_1 + 0.99 T_2 = 0) \quad (0.17 T_1 + 0.08 T_2 = 90N) \quad (-0.98$$

$$0.17 T_1 + 0.08 T_2 = 90N \quad (-0.98$$

$$-0.16 + 0.16 = 0$$

$$0.16 + 0.07 = 88.2N$$

$$0.23 = 88.2N$$

$$T_2 = \frac{88.2N}{0.23} = 383.47 = T_2$$

$$-0.98 T_1 + 0.99 (383.47) = 0$$

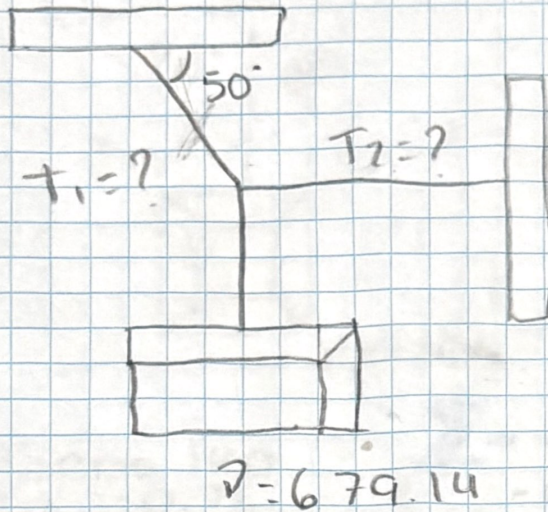
$$-0.9 T_1 + 379.6 = 0$$

$$T_1 = \frac{-379.6}{-0.98}$$

$$T_1 = 387.3N$$

Ejercicio 2

2.- Un objetivo de acero de 679.14 N de peso está suspendido como se indica en la figura.



$$T_{1x} = T_1 \cos 130^\circ$$

$$T_{1x} = -0.64$$

$$T_{1y} = T_1 \sin 130^\circ$$

$$T_{1y} = 0.76$$

$$T_{2x} = T_2 \cos 0^\circ$$

$$T_{2x} = 1$$

$$T_{2y} = T_2 \sin 0^\circ$$

$$T_{2y} = 0$$

$$T_{1x} + T_{2x} = 0$$

$$-0.64 + 1 = 0$$

$$T_{1y} + T_{2y} = P$$

$$0.76 + 0 = 679.14$$

$$T_1 = \frac{679.14}{0.76}$$

$$T_1 = 893.4 \text{ N}$$

$$-0.64 + 1 = 0 \quad (0.76)$$

$$0.76 + 0 = 679.14 \quad (0.64)$$

$$-0.48 + 0.76$$

$$= 0.48 + 0 = 0.434.6$$

$$T_2 = \frac{434.6}{0.76} = 571.8$$

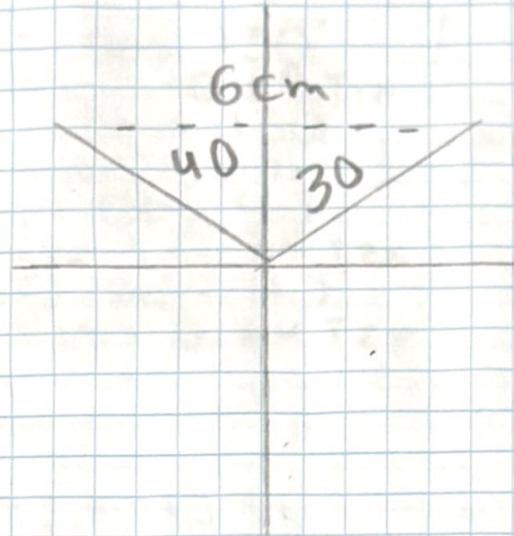
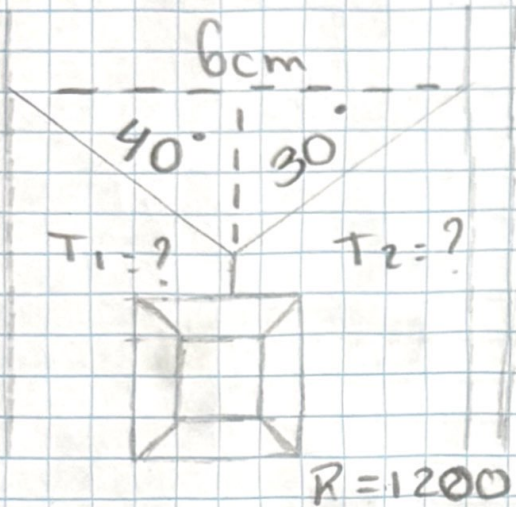
$$-0.64 + 1(571.8) = 0$$

$$-0.64 + 571.8 = 0$$

$$T_1 = \frac{571.8}{0.64}$$

$$T_1 = 893.4$$

Ejercicio 3.



1.

$$T_{1x} \cos 140$$

$$T_{1x} = -0.76$$

$$T_{1y} \text{ Sen } 140$$

$$T_{1y} = 0.64$$

$$T_{2x} \cos 30$$

$$T_{2x} = 0.86$$

$$T_{2y} \text{ Sen } 30$$

$$T_{2y} = 0.5$$

2.

$$T_{1x} + T_{2x} = 0$$

$$-0.76T_1 + 0.86T_2 = 0$$

$$T_{1y} + T_{2y} = N$$

$$0.64T_1 + 0.5T_2 = 1200 \text{ N}$$

$$-0.76T_1 + 0.86T_2 = 0 \quad (0.64)$$

$$0.64T_1 + 0.5T_2 = 1200 \text{ N} \quad (0.76)$$

$$0.4T_1 + 0.55T_2 = 0$$

$$0.4T_1 + 0.38T_2 = 912$$

$$0.93 = 912$$

$$T_2 = \frac{912}{0.93}$$

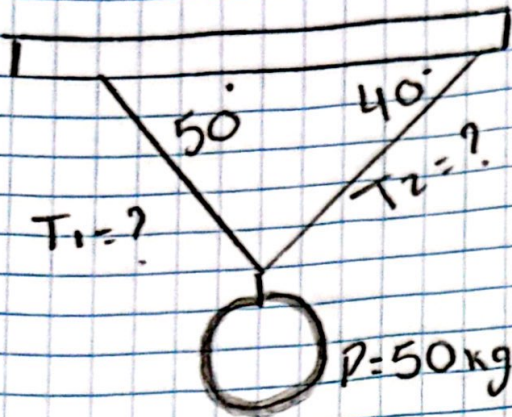
$$-0.76 + 0.86(980.6) = 0$$

$$-0.76 + 843.3 = 0$$

$$T_2 = 980.6 T_2$$

$$T_1 = \frac{-843.35}{-0.76} = 1,109.6 T_1$$

Ejercicio 4



$$\begin{aligned}
 T_1 \cos 130^\circ \\
 T_{1x} &= -0.64 T_1 \\
 T_1 \sin 130^\circ \\
 T_{1y} &= 0.76 T_1 \\
 T_2 \cos 40^\circ \\
 T_{2x} &= 0.76 T_2 \\
 T_2 \sin 40^\circ \\
 T_{2y} &= 0.64 T_2
 \end{aligned}$$

$$\begin{aligned}
 T_{1x} + T_{2x} &= 0 \\
 -0.64 T_1 + 0.76 T_2 &= 0
 \end{aligned}$$

$$\begin{aligned}
 T_{1y} + T_{2y} &= P \\
 0.76 + 0.64 &= P = 50 \text{ kg}
 \end{aligned}$$

$$\begin{aligned}
 -0.64 T_1 + 0.76 T_2 &= 0 & (\cdot 0.76) \\
 0.76 T_1 + 0.64 &= 50 & (\cdot 0.64)
 \end{aligned}$$

$$\begin{aligned}
 -0.48 T_1 + 0.57 &= 0 \\
 -0.48 T_1 - 0.40 &= -32 \\
 \hline
 0.17 &= -32
 \end{aligned}$$

$$T_2 = \frac{32}{0.17}$$

$$T_2 = 188.2$$

$$\begin{aligned}
 -0.64 + 0.76(188.2) &= 0 \\
 -0.64 + 143.0 &= 0
 \end{aligned}$$

$$T_1 = \frac{143.0}{0.64}$$

$$T_1 = 223.4$$