



Mi Universidad

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Nombre del tema: Problemario

Parcial: Unidad 3

Nombre de la Materia: Física

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Bachillerato Tecnológico en Enfermería General

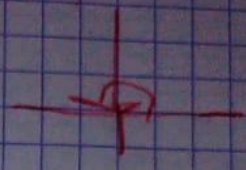
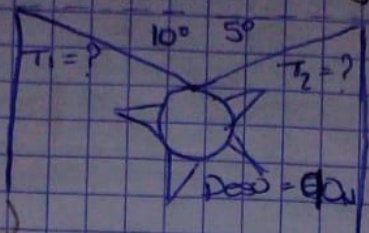
Cuarto semestre

PROBLEMATARIO

170

Unidad 3

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



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

$$T_{1x} = 0.98 T_1$$

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

$$T_{1y} = 0.17 T_1$$

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

$$T_{2x} = 0.99 T_2$$

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

$$T_{2y} = 0.08 T_2$$

$$\sum T_x = 0$$

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

$$-0.98 + 0.99 = 0$$

$$\sum T_y = 0$$

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

$$0.17 + 0.08 = 90$$

$$\textcircled{1} -0.98 T_1 + 0.99 T_2 = 0 \quad \textcircled{2} 0.17 (1.01) + 0.08 = 90$$

$$T_1 = \frac{0.99 T_2}{-0.98}$$

$$0.17 + 0.08 = 90$$

$$T_1 = 1.01 T_2$$

$$0.25 T_2 = 90$$

$$T_1 = 1.01 (360)$$

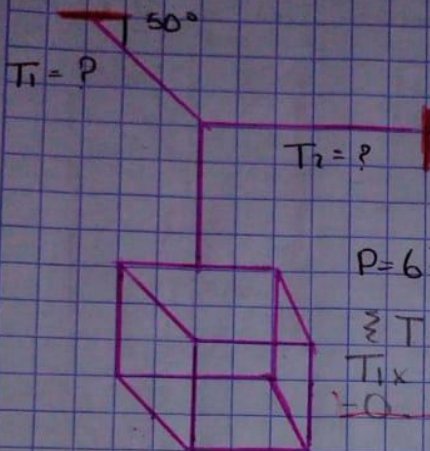
$$T_2 = \frac{90}{0.25}$$

$$T_1 = 363.6$$

$$T_2 = 360$$

$$T_2 = 360$$

② Un objeto de acero de 679.14 N de peso está suspendido. ¿Cuáles serán las tensiones de T_1 y T_2 que sostiene el cuerpo?



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

$$T_{1x} = -0.64 T_1$$

$$T_{1y} = \text{Sen}(130^\circ)$$

$$T_{1y} = 0.76 T_1$$

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

$$T_{2x} = 0 T_2$$

$$T_{2y} = \text{Sen}(0^\circ)$$

$$T_{2y} = 0 T_2$$

$$\sum T_{1y} \neq 0$$

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

$$0.76 T_1 + T_2 = 679.14$$

$$P = 679.14 \text{ N}$$

$$\sum T_x = 0$$

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

$$-0.64 T_1 + 0 = 0$$

$$-0.64 T_1 + 1 T_2$$

$$-0.64 T_1 + 1 T_2$$

$$T_1 = T_2$$

$$0.64$$

$$T_1 = 1.56$$

$$0.76 T_1 + T_2 = 679.14$$

$$0.76 (1.56 T_2) + T_2 = 679.14$$

$$1.18 T_2 + T_2 = 679.14$$

$$2.18 T_2 = 679.14$$

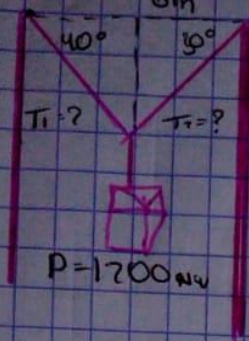
$$T_2 = 311.53 \text{ N}$$

$$T_1 = 1.56 (311.53 \text{ N})$$

$$T_1 = 487.87 \text{ N}$$

$$T_2 = 575.54 \text{ N}$$

③ Dos paredes están separadas a una distancia de 6 m. una de otra un objeto cuyo peso es de 1200 Nw está en el centro de una cuerda y forma ángulos de 40° y 30°



$$T_{1x} = (\cos(40)) \quad \sum T_x = 0$$

$$T_{1x} = -0.761$$

$$T_{1y} = \text{Sen}(40)$$

$$T_{1y} = 0.641$$

$$T_{2x} = (\cos(30))$$

$$T_{2x} = 0.861$$

$$T_{2y} = \text{Sen}(30)$$

$$T_{2y} = 0.5$$

$$\sum T_x = 0$$

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

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

$$\sum T_y = 0$$

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

$$0.64 + 0.5T_2 = 1200$$

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

$$-0.76T_1 = -0.86T_2$$

$$T_1 = 0.86T_2$$

$$0.76T_1$$

$$T_1 = 113T_2$$

$$T_1 = 113(983.60)$$

$$T_1 = 111.4$$

$$0.64T_1 + 0.5T_2 = 1200$$

$$0.64T_1 + 12.7T_2 (\cos) = 1200$$

$$0.72T_2 + 0.5T_2 = 1200$$

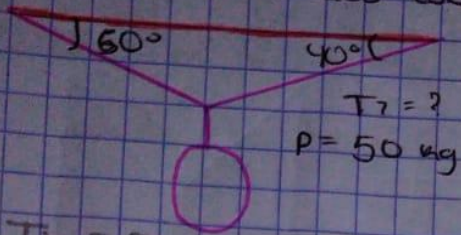
$$1.22T_2 = 1200$$

$$T_2 = 1200$$

$$\frac{1200}{1.22}$$

$$T_2 = 983.60 \text{ Nw}$$

④ Se tiene una bola metálica de 50 kg de peso, que está suspendida de dos cuerdas 50° y 40° .



$$T_2 = ?$$

$$p = 50 \text{ kg}$$

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

$$T_{1x} = -0.64 T_1$$

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

$$T_{1y} = 0.76$$

$$T_{2x} = \cos 40^\circ$$

$$T_{2x} = 0.64$$

$$T_{2y} = \sin 40^\circ$$

$$T_{2y} =$$

$$\sum T_x = 0$$

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

$$-0.64 T_1 + 0.76 T_2 = 0$$

$$\sum T_y = 0$$

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

$$0.76 T_1 + 0.64 T_2 = 0$$

$$T_1 = 118 T_2$$

$$0.76 T_1 + 0.64 T_2 = 0$$

$$0.76 T_1 (118 T_2) + 0.64 T_2 = 0$$

$$0.89 T_2 + 0.64 T_2 = 50 \text{ kg}$$

$$1.53 T_2 = 50 \text{ kg}$$

$$T_2 = \frac{50}{1.53}$$

$$T_2 = 32.67 \text{ kg}$$

$$-0.64 T_1 + 0.76 T_2 = 0$$

$$-0.64 T_1 = 0.76 T_2$$

$$T_1 = 0.76 T_2$$

$$0.64 T_1$$

$$T_1 = 7.18 T_2 (32.67 \text{ kg})$$

$$T_1 = 38.65 \text{ kg}$$