

Problemas Sobre Fuerzas

salma ¹

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Problem 1.

The diagram below depicts a force that makes an angle to the horizontal. This force will have horizontal and vertical components.



Figure 1: Which one of the choices below best depicts the direction of the horizontal and vertical components of this force?

Problem 2.

Three sailboats are shown below. Each sailboat experiences the same amount of force, yet has different sail orientations.

$$\frac{-}{x} \bigg| \frac{-}{x} \bigg| \frac{-}{x} \bigg| \frac{-}{x} \bigg|$$

Figure 2: Solucion: d.

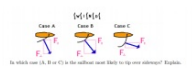
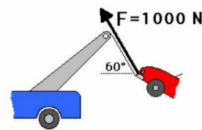


Figure 3: This is a caption

Solucion: en el caso A ya que la fuerza aplicada esta mas concentrada en el costado del vote y es el lado mas inestable.

Problem 3.

Consider the tow truck below. If the tensional force in the cable is 1000 N and if the cable makes a 60- degree angle with the horizontal, then what is the vertical component of force that lifts the car off the ground?



$$F_y = f \sin \vartheta = 1000 \sin 60 = 866.025 \quad F_x = f \cos \vartheta = 1000 \cos 60 = 500\text{N}$$

Problem 4.

After its most recent delivery, the infamous stork announces the good news. If the sign has a mass of 10 kg, then what is the tensional force in each cable? Use trigonometric functions and a sketch to assist in the solution.

$$\begin{aligned} T_y + T_y - W &= 2T_y = W \quad T \sin \vartheta = y_n \quad z \quad W = (10\text{kg}) \cdot 9.81\text{m/s}^2 = 98.1\text{N} \\ T \sin \vartheta + T \sin \vartheta - 98.1 &= 0 \\ 2T \sin \vartheta &= 98.1\text{N} \quad 2T \sin \vartheta = 98.1\text{N} \quad T = \frac{98.1\text{N}}{2 \sin 60} = 56.63\text{N en cada cabl} \end{aligned}$$