

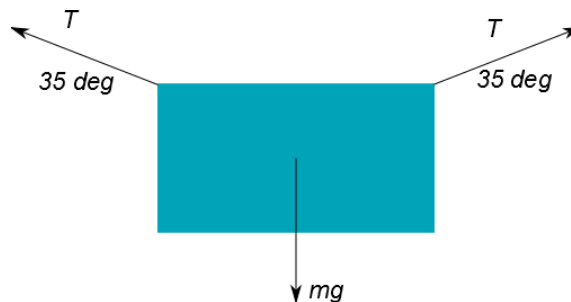
Answer on Question #37339

Physics - Mechanics | Kinematics | Dynamics

Question:

A tarpaulin weighs 15.70N and is hanged on the gate of the school using two cable wires, which makes an angle of 35 degrees above the horizontal. If the tarpaulin is in equilibrium state, how do you compare the tensions on the cable? What must be the tension of the cables so that it will support the weight of the tarpaulin? What is the direction of the tensions?

Solution:



Tension forces should compensate gravity, so

$$mg = 2 T \sin 35^\circ$$

$$T = \frac{mg}{2 \sin 35^\circ} = \frac{15.7}{2 \sin 35^\circ} = 13.7 \text{ N.}$$

Answer:

Tension force is smaller than the weight of a tarpaulin and equals 13.7 N. Tension forces are directed upward.