Module 04 - Lesson 4

Newton's First law

Question 1: An elevator is being pulled upward with a force $\vec{F}$. If the elevator moves upwards with constant speed, how does the magnitude of the upward force $\vec{F}$ exerted on the elevator compare to the magnitude of the downward force of gravity $\vec{F}_g$? Explain.

Question 2: An armchair with a mass of 15 kg is moving at a constant velocity while being pushed with an horizontal force of 50 N across a wooden floor. What is the value of the coefficient of kinetic friction between the armchair and the wooden surface?

Problem: Calculate the tension in the wire supporting a tight-rope walker with a mass of 60.0 kg, as shown in Fig. 1.

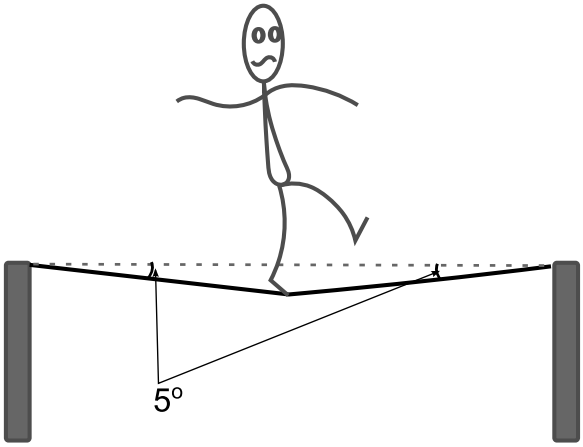

FIG. 1: Walking on a tight-rope