# Friction

1. A 24 Kg chair initially at rest on a horizontal floor requires a 165 N horizontal force to set it in motion. Once the chair is in motion, a 127 N horizontal force keeps it moving at a constant velocity. Find the coefficient for static friction, and kinetic friction between the chair and floor. [0.67, 0.52]
2. The magnitude of the applied force on a desk is 165 N and 30.0° below the horizontal. If the desk remains stationary, calculate the force of static friction acting on the desk. [143 N [180°]]
3. A force of 31 N [forward] is needed to start an 8.0-kg steel slider moving along a horizontal steel rail. What is the coefficient of static friction? [0.40]
4. A biker and his motorcycle have a mass f 240 kg. Calculate the force of kinetic friction for the rubber tires and dry concrete if the motorcycle skids. [2.0 x 103 N [backward]]

(μk b/w rubber tires and concrete = 0.7)

1. A 1640-kg forklift with rubber tires is skidding on wet concrete with all four wheels locked. Calculate the acceleration of the truck. [5 m/s2 [backwards]]
2. An applied force of 24 N [forward] causes a steel block to start moving across a horizontal, greased steel surface. Calculate the mass of the block. [16 kg]
3. A tractor and tow truck have rubber tires on wet concrete. The tow truck drags the tractor at constant velocity while its brakes are locked. If the tow truck exerts a horizontal force of 1.0 x 104 N on the tractor, determine the mass of the tractor. [2 x 103 kg]
4. A loaded dogsled has a mass of 400 kg and is being pulled across a horizontal, packed snow surface at a velocity of 4.0 m/s [N]. Suddenly, the harness separates from the sled. If the coefficient of kinetic friction for the sled on the snow is 0.0500, how far will the sled coast before stopping? [16 m]