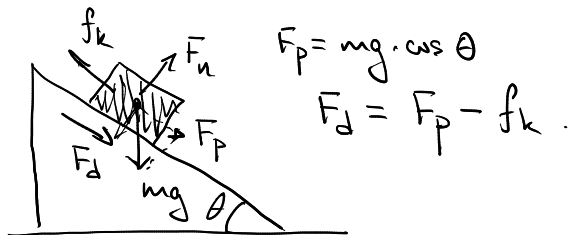


Name	MAKSI MOUICH, Roman
Date	02.10.2024
Lab session (Day & time)	03.10.2024, 09:00-10:50
Lab partner	ZHU, Mingyuan

M4 Work, Energy and Friction Lab Report

A. Answer the following questions BEFORE the lab session (6 pts each)

1. Draw a force diagram for motion down the plane and derive Eq. (2).

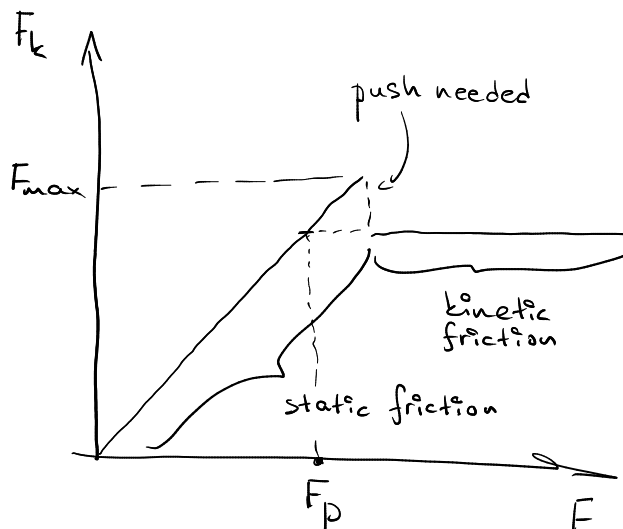


2. Show that the units of the work, $F_u L$, and the change of the gravitational energy ΔGPE , mgh , both reduce to joules.

$$[F_u L] = N \cdot m = J$$

$$[mgh] = (kg \cdot ms^{-2}) \cdot m = N \cdot m = J$$

3. To measure the coefficient of kinetic friction, one needs to give a small push to the car to get it in motion. Explain the effect of the small push. How is it related to the static friction?



The car may not start motion on its own due to the fact that maximum static friction force, F_{max} , exceeds the kinetic friction force which should equal F_p for constant velocity. As a result, $F_{max} > F_p$, and the car needs to be pushed.