

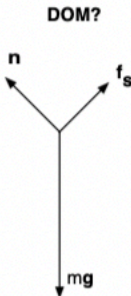
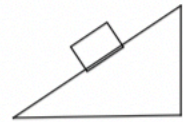
Physics FRICTION LAB

Name: _____ Hr: _____
sheet # 5.8

Static Friction (finding μ_s)

An object remains at rest on an inclined plane because it is under no net force.

However, when we adjust the incline to make a steeper slope, eventually the force of gravity will overwhelm static friction and send the object tumbling down! This split second is shown in the FBD to the right!



From the free body diagram, show the steps needed to find the coefficient of static friction if you know the mass of the object and the angle at which is "just about to slip" (*the angle of repose*)?

Hint - use the component method to break down the forces into their tilted x and y parts, then solve for μ_s . Show your work below here:

Kinetic Friction (finding μ_k)

Okay - our object has started sliding - now what? We now have a force of kinetic friction in our system. How do we find kinetic friction? While the inclined plane could work, we can make it easier for us by taking the angles out and just applying a constant force on our object with weights.



We have to make sure that our forces are in equilibrium. Based on Newton's 1st law, what does that tell us about our velocity? It is _____

Object	angle of repose	μ_s	μ_k

How can you determine the velocity of the object using the equipment you have, or your cell phone?

Use the FBD to develop an equation for μ_k .

Once your table has figured out both equations, box them in and start collecting data!