Name: _____   Date: _____

Determining the Coefficient of Friction

Objective:
To experimentally determine the coefficient of friction and show the effect on friction
with variations in the sitting and hanging mass.

Equipment:
hanging masses   pulley   string
wooden blocks

Procedure:
1. Determine the mass of the block and record in the table.
2. Lay the inclined plane on the table top/ Run a piece of string from the block
    (standing mass – with its wood side down), over the pulley, and attached to a five
    gram hanger (hanging mass).
3. Slowly add masses to the hanging mass until the standing mass begins to move after
    lightly tapped. Record the hanging mass that makes the standing mass move in the
    table below.
4. Repeat for five total trials, changing the mass each time by adding a mass on top of
    the sitting mass.
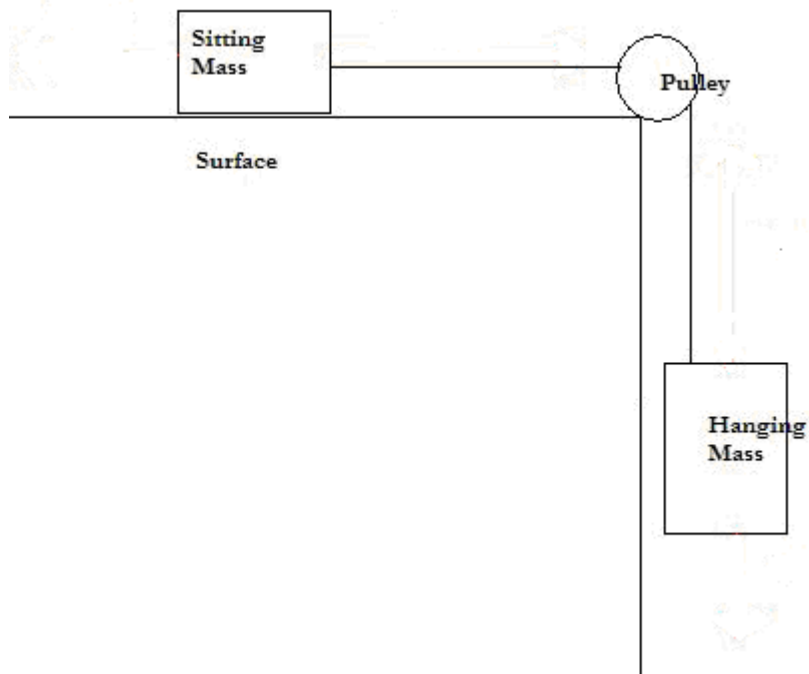
Data:

Trial	Sitting mass (kg)	Hanging mass (kg)
1		
2		
3		
4		
5		

Analysis/Conclusion:
1. Draw a force diagram, labeling all the forces acting on the block of wood.
2. Determine the weight of the hanging mass for each trial.
3. Explain why the weight of the hanging mass is equal to the frictional force on the standing mass.
4. Determine the weight of the standing mass for each trial.
5. Explain why the weight of the standing mass is equal to the normal force.
6. Determine the coefficient of friction for each trial.
7. Construct a graph of Friction vs. Normal Force.
8. Determine the best-fit line, pick two points on the line and find the slope.
9. What is the significance of the slope of the line in terms of other values found in this experiment?