

Name: _____

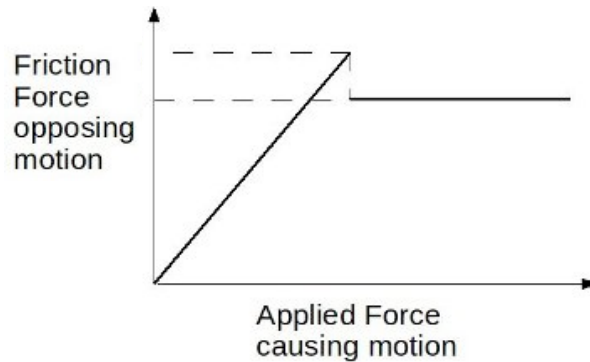
Class Period: _____

Honors Physics: Friction – Homework

*Set calculators to degrees

Conceptual Questions:

1. On the graph below label the region that shows static friction, maximum static friction, and kinetic friction.



2. For the forces of friction below – state whether there is only one specific value or multiple values possible.

Static Friction (F_{fs}):

Maximum Static Friction (F_{fs}^{\max}):

Kinetic Friction (F_{fk}):

Mathematic Questions

3. What force is required to move a 35.0 kg box across a floor at a constant velocity if the coefficient of kinetic friction is 0.300 between the floor and the box?

Equilibrium or Non-equilibrium ΣF_x : _____

Equilibrium or Non-equilibrium ΣF_y : _____

4. A 20.0 kg box is being dragged across a horizontal floor by a force of 90.0 N directed upwards by 30.0° with respect to the horizontal. The box accelerates at a rate of 0.12 m/s^2 to the right. What is the value of the coefficient of kinetic friction?

Equilibrium or Non-equilibrium ΣF_x : _____

Equilibrium or Non-equilibrium ΣF_y : _____

5. A force of 40.0 N is needed to bring a 5.00 kg box to its breaking point along a horizontal floor.
- A. What is the coefficient of static friction? (Reminder, the breaking point is *right before* the object moves – so would this be equilibrium or non-equilibrium?)

Equilibrium or Non-equilibrium ΣF_x : _____

Equilibrium or Non-equilibrium ΣF_y : _____

- B. With a force of 42.0 N, the 5.00 kg box will accelerate at 0.70 m/s^2 . What would the coefficient of kinetic friction be?

Equilibrium or Non-equilibrium ΣF_x : _____

Equilibrium or Non-equilibrium ΣF_y : _____