UNIT V: Worksheet 4 Name: #:

1. Suppose a hanging 2.0 kg lab mass is attached to a 6.0 kg block on the table.



a. If the coefficient of kinetic friction, µk is 0.20. what is the acceleration of the block?

b. What would be the minimum value of the coefficient of static friction, µs, in order for the block to remain motionless?

2. A block weighing 500. N is moved *at constant speed* over a horizontal surface by a force of 75. N applied parallel to the surface.

a. Construct a picture and a force diagram for the block.



b. What is the coefficient of kinetic friction?

c. What would be the acceleration of the block if k = 0?

3. A 200. N force is applied to a 60. kg crate resting on a level floor. The coefficient of kinetic friction is 0.20.

a. Draw a force diagram to represent this situation.

b. What is the acceleration of the crate?

4. In the situation described above, the coefficient of static friction, s = 0.35. Is the 200. N force sufficient to cause the crate to accelerate? Draw a force diagram then explain why or why not.



**25°**

**15.0 kg**

5. A 15.0 kg block is allowed to slide down a ramp with k = 0.20.



a. What is the value of the frictional force opposing the block's slide down the ramp?

b. What is the acceleration of the block?