Name:_____ Date:_____

Friction Worksheet

Draw Free-body diagrams and label all of the force vecotrs. Use Newton's laws of Motion to solve the following problems.

1. A 10 kg box rests on the ground.
a. What is the weight of the box?
b. What is the normal force of the ground on the box?
b. The box is pushed to the left with 20 N of force, but does not move. What is the Static Friction Force?
c. When the pushing force is increased to 40 N, the box just begins to move. What is the Maximum Static Friction Force?
d. What is the co-efficient of Static Friction (μ_s) between the ground and box?

2. A sled is pulled horizontally across the snow at constant velocity. The pulling force is 40 N.
a. What is the Kinetic Frictional Force on the Sled?
b. If the weight of the sled is 200 N, what is the co-efficient of Kinetic Friction (μ_k) between the sled and snow?
c. If 30 kg of wood is placed in the sled, what pulling force is needed to move the sled at constant velocity?