**Physics 11 Dynamics Worksheet**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_

1. A physics student weighing 600 N that is throwing a tantrum is pushed out of the room along a horizontal floor at a constant velocity by a force of 250 N parallel to the floor. What is the coefficient of friction between the students and the floor?
2. What is the acceleration of a falling 75 kg skydiver at a moment when the air resistance exerts a force of 250 N?
3. A box is given a push so that it slides across the floor. How far will it go if the coefficient of friction is 0.30 and its initial speed is 3.0 m/s?
4. Two boxes of mass 12 kg and 10 kg are resting on a surface and connected by a lightweight cord. The coefficient of friction between the boxes and the surface is 0.15. Calculate the acceleration of each box. 
5. Two girls, one of mass 40 kg and the other of mass 60 kg, are standing side by side in the middle of a frozen pond. The larger one pushes the smaller one with a force of 360 N for 0.10 s. The ice is virtually frictionless.
   1. What is each girl’s acceleration?
   2. What velocity will each girl acquire in the 0.10s of the pushing?
   3. How far will each girl move during the same time period?
6. A truck of mass 1200 kg is driven onto a weigh scale supported by coil springs. How far will the scale move if the spring constant for the scale is 5.9 x 104 N/m?
7. A volleyball player dives to hit the ball and starts sliding across the gym floor with an initial speed of 3.0 m/s. If the player stops after sliding 2.0 m, what is the coefficient of friction between the floor and the player?
8. A 3.0 kg block is pushed by a 14 N force. If uk= 0.3 and us= 0.6, will the block move? (Show work)