**Unit 5 - Worksheet 6**

**Friction Force (Adapted from AMTA 2016)**

**Kinetic friction:** Ffk  = μk F⊥ **Static friction:**  Ffs  ≤ μs F⊥

1. Determine the amount of kinetic friction and the maximum static friction for the following objects:
   1. A 10 kg object on a flat rough surface - μk = 0.60 μs = 0.75
   2. A 20 kg object on a flat smooth surface - μk = 0.05 μs = 0.10
   3. A 10 kg object on a flat smooth surface on the surface of the Moon - μk = 0.05 μs = 0.10
2. A horizontal 50.0 N tension force is applied to a 20.0 kg crate moving along a level floor. The coefficient of kinetic friction is 0.15.

a. Draw a force diagram to represent this situation.

b. What is the acceleration of the crate?

1. In the situation described above, the coefficient of static friction, μs = 0.25. Is the 50.0 N force sufficient to cause the crate to accelerate? Draw a force diagram, then explain why or why not.
2. A 40.0 kg crate is pulled across a flat surface (μk = 0.15, μs = 0.20) by a force of 100 N. Determine the acceleration of the object.
3. Why is it easier to *keep* an object moving than it is to *start* an object moving?