Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_\_\_\_

**Ch 4.4 Everyday Forces -** Page 141- Practice Problems E – Overcoming Friction

1. A student pulls on a rope attached to a box of books and moves the box down a hall. The student pulls with a force of 185 N at an angle of 25° above the horizontal. The box has a mass of 35.0 kg of and *µk* between the box and floor is 0.27. Find the acceleration of the box.
2. A student in item 1 moves the box up a ramp incline at 12° with the horizontal. If the box starts from rest at the bottom of the ramp and is pulled at an angle of 25.0° with respect to the incline with the same 185 N force, what is the acceleration up the ramp? Assume that *µk* = 0.27.
3. A 75 kg box slides down a 25.0° ramp with an acceleration of 3.60 m/s2.
4. Find the *µk* between the boxand the ramp.
5. What acceleration would a 175 kg box have on this ramp?
6. A box of books weighing 325 N moves at a constant velocity across the floor when the box is pushed with a force of 425 N exerted downward at an angle of 35.2° below the horizontal. Find the *µk* between the box and floor.