

## Written Homework #10

## Physics 131 Spring 2009

Due on Wednesday 22 April 2009 at the beginning of lecture.

Write down your name and student ID number.

A 2.3 kg box, starting from rest, is pushed up a ramp by a 10 N force parallel to the ramp. The ramp is 2.0 m long and tilted at 17 degrees above the horizontal. The speed of the box at the top of the ramp is 0.80 m/s.

- a. Identify the system (which are its components?).
- b. How much work does the force do on the system?
- c. What is the change in the kinetic energy of the system?
- d. What is the change in the gravitational potential energy of the system?
- e. What is the change in the thermal energy of the system?

*Show your work to get full credit.*