

Name: \_\_\_\_\_  
Class Period: \_\_\_\_\_

**Physics: Work, Power, and Energy**  
**Extra Credit**

1. A 15.0 kg crate is being pulled up a rough incline (angled up  $18.0^\circ$ ) with an initial velocity of 2.50 m/s. The pulling force is 100.0 N and is directed parallel to the incline. The coefficient of friction between the crate and the incline is 0.400. The crate moves a distance of 5.50 m up the incline.
  - A. Draw a FBD of the scenario described above.
  - B. Calculate the components of the force of gravity.
  - C. What is the work done by the force from the person pulling up on the crate?
  - D. What is the work done by friction on the crate?
  - E. What is the work done by gravity on the crate?
  - F. What is the velocity of the crate after it is pulled the 5.50 m?
  
2. Lifting with a constant velocity, one weight lifter lifts a mass of 205.0 kg a vertical height of 0.8500 m in 2.000 s. A second weight lifter lifts the same distance at a constant velocity but in 1.500 s. How much mass must the second weight lifter lift to have the same power as the first?