Name _____ Date _____ Period ____

1. A force of 8.00 10^2 N is needed to push a car across a lot. Two students push the car 40.0 m. How much work is done?

2. How much work is done in lifting a 60.0 kg crate a vertical distance of 10.0 m.

3. A person carries a 34 N package from the ground floor to the fifth floor of an office building, or 15 m upward. How much work does the person do to move the package?

4. What work is done to lift a 49 kg crate a distance of 10.0 m?

5. A worker carries cement blocks, weighing 150.0 N each, up a ladder onto a scaffold 8.00 m high. The worker carries them at a rate of two blocks per minute. How much work is done by the worker in…
   a. 10.0 minutes
   b. 1.00 hour

6. The hammer of a pile driver has a mass of 100.0 kg. The machine's engine lifts it to a height of 5.00 m every 10.0 seconds.
   a. How much work must the machine do to lift the hammer?
   b. How much work does the machine do in 1.00 minute?

7. A force of 600.0 N is applied to a metal box to pull it 15.0 m across a floor. The rope used to pull the box is held at an angle of 15.0° with the floor. How much work is done?

8. A person uses a rope to pull a 1000.0 kg boat 50.0 m along a wharf. The rope makes an angle of 45.0° with the horizontal. If a force of 40.0 N is used to move the boat, how much work is done?

9. It takes 1200.0 J of work to pull a loaded sled weighing 800.0 N a distance of 200.0 m. To do this, a force of 120.0 N is exerted on the rope, which makes an angle with the horizontal. At what angle is the rope held?

10. A cable attached to a small tractor pulls a barge through a canal lock. The cable makes an angle of 30.0° with the direction in which the barge is moving and has a tension of 2.50 x 10^3 N.
    a. What force moves the barge along the lock?
    b. If the lock is 200.0 m long, how much work is done to get the barge through the lock?

11. Due to friction, a force of 400.0 N is needed to drag a wooden crate across a floor. The rope tied to the crate is held at an angle of 56.0° with the horizontal.
    a. How much tension is needed in the rope to move the crate?
    b. What work is done if the crate is dragged 25.0 m?

12. A student librarian picks up a 0.95 N book from the floor to a height of 1.25 m. She carries the book 8.00 m to the shelves and places the book on a shelf that is 2.00 m high. How much work has been done on the book?