Handed Out: _____ Name: _____
Due: _____ Date: _____

Work Problems

Physical Science and Technology

Instructions: Please use your own paper to solve these problems. Show all work. Make sure you write your first *and last name* on your paper! Use the Five Steps where indicated.

1. A guy is walking down the street pushing a turtle. The turtle has a mass of 14.6 kg. The guy pushes it for 15.8 meters. The turtle accelerates at 1.6 m/s^2.
    a. What was the unbalanced force affecting the turtle? Use the Five Steps. Remember: F = m * a

    b. How much work was done to the turtle? Use the Five Steps.

2. A gal pushes on a wall for 16 hours. The gal is pushing with a force of 715 Newtons. The wall does not move at all. How much work was done to the wall? Use the Five Steps.

3. What, in your own words, is the difference between the *non-scientific* definition of the word "work" and the *scientific* definition of the word "work"?

4. A box full of rats is sitting still on a freeway. A gal pushes on the box of rats. It takes her 16 seconds to accelerate the box of rats until it is moving at a velocity of 18.3 m/s. The box of rats has a mass of 12.88 kg. She moves the box over a total distance of 89.5 meters.
    a. How quickly did the gal accelerate the box of rats? Use the Five Steps. Remember : $a = (v_f - v_i) / t$

    b. How much unbalanced force affected the box of rats? Use the Five Steps. Remember: F = m * a

    c. How much work did the gal do to the box of rats? Use the Five Steps.

5. A turkey does 16.7 Joules of work to a piece of straw. As a result, the straw moves 4.2 meters. With what force was the turkey pushing on the straw? Use the Five Steps.

6. A piece of straw does 25.1 Joules of work to a turkey. The piece of straw is pulling the turkey with a force of 8.3 Newtons. How far did the turkey move? Use the Five Steps.