Power Drag Post-Lab Assessment Answer Key

Instruction: After completing the lab, answer the following questions.

1. How does the work done on the objects compare with the different weights? Example: The bigger the weight, the _____bigger_____ the work done.

2. Which one has more power, the fast movement one or the slow movement one? Explain your choice.
    The faster one; since P=W/t, the smaller the value of t, the bigger the power.

3. What are the factors that determine the work done on an object? (Hint: See the equation.)
    Force and displacement

4. What are the factors that determine the power used on an object? (Hint: P=W/t)
    Work and time; also P = F x v (force and velocity)

5. A 2-kg box is pushed a distance of 3.67 m by a force of 300 N. How much work was done on the box?
    W = F x d = 300 x 3.67 = 1,101 J

6. A 4,500 J amount of work is applied to a 2.2-kg ball that moved a distance of 3.3 m. How much force was applied to the ball?
    F= W/d = 4500/3.3 = 1,363.6 N

7. If a cart is pushed by a force of 300 N with 4500 J of work, how much distance did it move?
    d = W/F = 4500/300 = 15 m

8. A box is lifted up in 15 seconds by applying 2,000 J of work on it. How much power was applied on the box?
    P = W/t = 2000/15 = 133.3 W

9. A box is pushed with a force of 100 N that moved it a distance of 15 m in 20 seconds. How much power was applied on the box?
    P = W/t, get W = F x d = 100 x 15 = 1500 J, then P = W/t = 1500/20 = 75 W

10. How much work was applied on a box pushed for 10 seconds by a machine with 300 W power?
    W = P x t = 300 x 10 = 3000 J