

Honors Physics – Work, Power, and Energy Homework (Section 10.1 Problems, #52-59)

Directions: Show all of your work on a separate sheet of paper.

10.1 Energy and Work

- 52.** The third floor of a house is 8 m above street level. How much work is needed to move a 150-kg refrigerator to the third floor?
- 53.** Haloke does 176 J of work lifting himself 0.300 m. What is Haloke's mass?
- 54. Football** After scoring a touchdown, an 84.0-kg wide receiver celebrates by leaping 1.20 m off the ground. How much work was done by the wide receiver in the celebration?
- 55. Tug-of-War** During a tug-of-war, team A does 2.20×10^5 J of work in pulling team B 8.00 m. What force was team A exerting?
- 56.** To keep a car traveling at a constant velocity, a 551-N force is needed to balance frictional forces. How much work is done against friction by the car as it travels from Columbus to Cincinnati, a distance of 161 km?
- 57. Cycling** A cyclist exerts a force of 15.0 N as he rides a bike 251 m in 30.0 s. How much power does the cyclist develop?
- 58.** A student librarian lifts a 2.2-kg book from the floor to a height of 1.25 m. He carries the book 8.0 m to the stacks and places the book on a shelf that is 0.35 m above the floor. How much work does he do on the book?
- 59.** A force of 300.0 N is used to push a 145-kg mass 30.0 m horizontally in 3.00 s.
- Calculate the work done on the mass.
 - Calculate the power developed.