1. A top fuel dragster has a mass of 1000kg and it can accelerate from zero to 100mph (44.0m/s) in 0.840s. Find (a)the minimum amount of work that must be done by the engine and (b)the minimum average power output of the engine.

2. Pick four appliances you own from the list below. For each one estimate the number of hours you run it each month. Calculate the total energy you use in kWh and estimate the cost at about 12¢ per kWh. Express your answer in a table.

Appliance	Power (W)	Time (h)	Energy (kWh)	Cost ($)

3. Power companies subsidize the price of compact fluorescent bulbs to save on building power plants. A 300MW plant costs about $1 billion. Assume that each compact fluorescent replaces a 60.0W bulb with a 13.0W bulb that puts out the same amount of light. (a)Find the number of bulbs they have to replace to avoid having to build a 300MW plant. (b)Assume they subsidize each bulb by $10, find the total cost of the subsidy. (c)Compare the cost of the subsidy on the bulbs to the cost of a new power plant.

4. An airplane traveling at 650km/h for 4.00hr has engines that exert an average thrust of 14.0kN to maintain this constant speed. Find (a)the power provided by the engine and (b)the total work done by the engine.

Appliance	Power (W)
Blender	500
Clock Radio	5
Coffee Maker	1,700
Computer - PC	300
Electric Blanket	400
Electric Curlers	300
Frying Pan	1,250
Hair Dryer	1,875
Iron	1,200
Light Bulbs	60
Microwave	1,700
Washing Machine	2,200
Water Heater	4,000
TV - Color	300
Freezer	2,100
Garage Door Opener	1,000
House Heater	725