SEMINAR 6 Application Activity

The website <http://energy.gov/energysaver/articles/estimating-appliance-and-home-electronic-energy-use> includes the typical wattages for many common household appliances. Using the information found on the site, answer the following questions:

1. (A) Record the information from the website for the appliances listed (1 point).   
   (B) Calculate the average energy use in kilowatt-hours for each appliance (3 points).   
   (C) Assuming energy is priced at **11 cents per kilowatt-hour**, calculate the total daily cost of running the appliances, given the average use time (3 points).

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| **Appliance** | **(A) Watts** | **Hours per**  **day** | **(B) Average energy use per day (kilowatt-hours)** | **(C) Total Energy Cost per day** |
| Refrigerator | 625 | 8 |  |  |
| Computer and monitor | 152hrs/day | 24 (assuming it is a tower that is always plugged in) |  |  |
| Dishwasher | 1200 | 2 |  |  |
| Microwave | 1000 | 0.75 |  |  |
| Television | 150 | 3.5 |  |  |

1. If a new refrigerator costs, on average $750:
   1. Determine the **average cost per year** for a refrigerator that lasts **18 years** (assuming that the only costs are the original purchase price and the energy costs calculated above). **SHOW ALL WORK** (2 points)
   2. Determine the **average cost per year** for a refrigerator that lasts **27 years** (assuming that the only costs are the original purchase price and the energy costs calculated above). **SHOW ALL WORK** (2 points)
   3. Develop a function that gives the average cost per year "C" of a refrigerator as a function of the number of years "y" you own the refrigerator. (4 points)
   4. If a company offers a refrigerator at $1600, but says it will last at least 45 years, is the refrigerator worth the difference in cost? Why or why not? Use **mathematics** to support your answer (5 points)