Email From Fred and Carrie

Hi,

Thanks for helping us examine the price-per-pound model. The Report you create will help us learn more about the potential profit and allow us to make decisions that will be best for our business.

1. We need you to start by researching washing machines. Choose one that you think will be economical and practical for a price-per-pound model. Make sure you provide a link to the website where we can purchase the washer you choose. Also include the washing machine's capacity in pounds. Use the following information to convert capacity from cubic feet to pounds of laundry:
   - ★ Less than 4.0 cubic feet=16 pounds of laundry
   - ★ 4.1-4.5 cubic feet=20 pounds of laundry
   - ★ 4.6 cubic feet or more=28 pounds of laundry

2. Determine a reasonable cost per load for the chosen machine. This will represent the amount each load of laundry will cost **us** to wash. Follow these steps to find the cost per load:

   1. Consult the machine's Energy Guide, which is usually located on the webpage where your machine can be purchased from. The Energy Guide will contain the cost of the product's energy per year, as well as the average loads per week. Use this information to help you find the cost of energy per load.
   2. Add $0.10 per load for the cost of water.
   3. Add $0.15 per load for the cost of detergent.
   4. Add $0.50 per load for the cost of employee labor.

Keep in mind that, due to the nature of the laundry business, the cost per load will remain constant despite the weight of the laundry. In other words, partial loads will cost us the same as full loads.

In the report, include the cost per load, as well as an explanation of how you determined it.

3. Determine a formula for profit. This formula should show the profit for any given amount of laundry (in pounds), and take the expense per load into account. Remember, we will charge the customer $1.00 for every pound.

4. Provide a table representing a range of solutions from 0 pounds to 60 pounds, including solutions for 20, 40 and 60 pounds. Use any reasonable increment (for example, every five or ten pounds.) Include the following columns in your table:

★ Weight of Laundry (in lbs)
★ Machines Needed (M)
★ Sales (s)
★ Cost per load (c)
★ Profit (P)
★ Δ P

5. Include a piecewise function graph showing profit per pound of laundry, with reasonable increments. Make sure we can clearly see the "pieces" of the graph!

6. At the end of the report, explain (in two-three paragraphs) what the formula, table and graph each show, as well as what each means for our business.

7. Finally, compare the two models (price-per-pound and price-per-load) and explain which one you think we should use. We are interested in whichever model has the potential to be more profitable. Be sure to apply your answer to our business.

Thank you again for all your help on this!

Fred and Carrie