It’s 7:03 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Buying a car is one of the four most expensive things you can do in your life. Many people choose to buy themselves a brand new car. The problem with buying a new car is something called depreciation. Depreciation is the loss of value of a good over time. As soon as a new car is bought and drive off the lot its’ value is reduce by 33%.

For today we will be exploring four different types of car. Our first car is 2019 Cadillac Escalade which retails for $75, 175. The second is a 2019 Ford F150 which retails for $28, 155. The third is a 2019 Toyota Corolla for a whopping $18, 700. Finally, a used 2002 Chevy Cavalier for $1,000 which will no longer depreciate.

Initial Depreciation:

1) Calculate the value of each of the four cars as soon as they drive off the lot. This is also the value of the car after the first year.

2) Calculate the loss of value of each vehicles after the first year.

3) Write a sequence for value of the car after depreciation of each of the four vehicles for the first five years. Assume the rate of depreciation stays at a 33% reduction in value.

4) Are the sequences you wrote in number 3 arithmetic or geometric. Explain.

Most people cannot afford to buy a car with cash (really writing a check or money order). So what they do is take out an auto loan. Auto loans vary in length from 24 months to 84 months. The interest rate for each auto loan is also dependent on your credit score. Credit score is essential your financial reputation. They more you pay your bills on time the better your credit score. The longer you have had and used credit responsibly the better score you have. People with excellent credit (790 – 850) can get an auto loan for 3.5%. People with Good credit (680 – 740) can get an auto loan for 6.5%. People with poor credit are not likely to get a loan but if they do they get a rate of 9%.

4) Using the compound interest formula, calculate the amount of interest for buying one of the new cars on the previous page at each credit level. Assume that the interest is compounded once per month and the loan length is five years.

5) Compare value of the vehicle after five years to the amount paid for the car after the end of each loan.

The monthly payments for the 2019 Ford F150 depend on the credit score. For excellent credit the payments are $512 a month for the principal and interest. For good credit the payments are $551 a month. And for poor credit the payments are $584 a month.

6) Calculate the total cost of the F150 after the 60 month loan for each credit score.

7) How much money does good credit save over the life time of the loan? Remember people are not buying a better truck they are paying more for the same truck.

8) What are the effects of having good credit? How much would the $1000 car cost over the life time of these auto loans?