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Paper Three

A) We decided that a house was going to be our object A. We choose a house because after we graduate and hopefully start families, a house is going to be one of the top priority objects that we need to have. After doing some research on the typical price of a small house in central Virginia, we thought that it would be appropriate to take out a loan of $300,000.00. Additionally, for object B, we decided that the money would go towards buying a car. Another object that we will most certainly need to have when we are living by ourselves. After comparing different models from different companies, we decided that $25,000.00 was the amount that we wanted to borrow to buy a nice, safe, and reasonably priced SUV.

B) The monthly payment to purchase object A, or a house, based on the amount we borrowed, $300,000.00 was $6,227.51. Additionally, the monthly payment to purchase object B, a car, based on the amount we borrowed, $25,000.00 was $518.96.

C) To figure out the monthly payment, we used the monthly payment formula. To find the monthly payment for object A, the house, $300,000.00 was the amount we borrowed, *r* was $\frac{0.09}{12}$and *t* was 60. *t* was 60 because the amount borrowed was being paid back over 5 years, but since we were aiming to find the monthly payment, you need to times 5 by 12, since there are 12 months in a year to find out the total number of months that you will be making a monthly payment. We also used the monthly payment formula to find out the monthly payment of object B, the car. The variable *r* and *t* were the same in this formula. The only changes was that the amount borrowed was $25,000.00

D) An Amortization schedule is a data table that illustrates the process of paying off a loan. It expresses this by showing your loan balance, the principal, the amount of interest charged. By giving you this information, you can easily predict and calculate any balance that is outstanding at any point in the future. This knowledge of the future allows people to choose the options that are best for them. For example, choosing the loan that is least expensive over time.

E) Equity refers to the amount of capital invested by the owner. In this instance, our equity in the loan is how much of the principal we have paid. After 6 months of payments on Object A, our equity in the item is $4128.92. For Object B after 6 monthly payments, our equity in the item is $344.07. There is a much greater equity in Object A because it is much more expensive than Object B.

F) Object A has the greatest amount applied to interest ($2250) because the loan for Object A required a larger amount of money. Object A also has the greatest amount applied to the balance owed because of the large amount of money the loan requests.

G) If the loans were grouped together by the bank, totalling a $325,000 loan, the monthly payment would be the sum of the two payments. Currently, each payment is at $6227.51 and $518.96. Using the “monthly payment formula” and plugging $325,000 into the *amount borrowed* and *r* = .09/12 and *t* = 60, the answer is $6746.47, which is the sum of the two separate payments. They are the same because the same goal, rate, and time is applied here.

H) If the current monthly payment of Object A was too much at $6227.51 and it needed to be cut in half to $3113.76, you could borrow about 150,000. Cutting your monthly payment formula in half results in borrowing half of the original amount, but keeps the same rate and time period. You would use the “amount borrowed” formula and plug in $3113.76 for the *monthly payment* and *r* = .09/12 and *t* = 60.

I) Similarly, cutting the Object B monthly payment in half would result in taking out half of the original loan. By plugging $529.48 into the “amount borrowed” formula and keeping both *r* and *t* the same, you cut your budget of the amount you can borrow in half to $12,500.