Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour\_\_\_\_

**Advanced Algebra**

**Loans and Investments**

1. Suppose you borrow $22,000 to purchase a new car. The investment must be paid off in 5 years (60 months). The bank charges interest at an annual (yearly) rate of 7.9%, compounded monthly.



1. What is the monthly interest rate?
2. If you make a $300 payment at the end of the 1st month, what is the remaining balance?
3. Record the balances for the first 6 months with monthly payments of $300
4. Experiment with other values for the monthly payments. What monthly payment allows you to pay off the loan in exactly 60 months?
5. How much do you actually end up paying for the car if you make monthly payments until the car is paid off? (Hint: the last payment will be a little less than the other 59 payments)
6. Tom and Shaleah each get $1000 bonus at work and decide to invest it. Tom puts the money into an account that earns an annual interest rate of 6.5%, compounded yearly and the deposits $1200 at the end of each year. Shaleah finds and account that earns 6.5%, compounded monthly and deposits $100 at the end of each month.
   1. Compare the amount of money that Tom and Shaleah deposit each year.
   2. What are the monthly balances of each account for:

|  |  |  |
| --- | --- | --- |
| Month | Tom | Shaleah |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 6 |  |  |
| 12 |  |  |
| 24 |  |  |
| 36 |  |  |
| 48 |  |  |

Explain how you found the above values

* 1. If Tom and Shaleah continue on in the same way for 15 years, who made the best investment decisions. Justify your answer.