Finite Math, MATH 1100 R07
Fall 2022

Written Homework 5

Due Friday, December 9

1. Michelle borrows $\$7,200$ from her father to buy a used car. She repays him after 9 months, at an annual simple interest rate of 6.2%. Find the total amount she repays. How much of this amount is interest?

2. Find the interest rate of $\$8,000$ accumulating to $\$11,672.12$ compounded quarterly for 8 years.

3. Hector needs $\$10,000$ in 8 years. How much money should he deposit at the end of each quarter into a savings account that pays 8% compounded quarterly?

4. The annual interest rate on a credit card is 16.99%. If a payment of $\$100$ is made each month, how long will it take to pay off an unpaid balance of $\$2,487.56$?

5. A couple has a $\$129,000$, 20-year mortgage at 7.2% compounded monthly.

   (a) Find the monthly payment and the total interest paid.

   (b) Suppose the couple decides to add an extra \$102.41 to its mortgage payment each month starting from the very first payment. How long will it take to the couple to pay off the mortgage? How much interest will be saved?

6. A person wants to establish an annuity for retirement purposes. He wants to make quarterly deposits for 20 years so that he can then make quarterly withdrawals of $\$5,000$ for 10 years. The annuity earns 7.32% interest compounded quarterly.

   (a) How much will have to be in the account at the time he retires?

   (b) How much should be deposited each quarter for 20 years in order to accumulate the required amount?