

## 6.6: Chapter Review

### SECTION 6.6 PROBLEM SET: CHAPTER REVIEW

1. Manuel borrows \$800 for 6 months at 18% simple interest. How much does he owe at the end of 6 months?
2. The population of a city is 65,000 and expects to grow at a rate of 2.3% per year for the next 10 years. What will the population of this city be in 10 years?
3. The Gill family is buying a \$250,000 house with a 10% down payment. If the loan is financed over a 30 year period at an interest rate of 4.8%, what is the monthly payment?
4. Find the monthly payment for the house in the above problem if the loan was amortized over 15 years.
5. You look at your budget and decide that you can afford \$250 per month for a car. What is the maximum amount you can afford to pay for the car if the interest rate is 8.6% and you want to finance the loan over 5 years?
6. Mr. Nakahama bought his house in the year 1998. He had his loan financed for 30 years at an interest rate of 6.2% resulting in a monthly payment of \$1500. In 2015, 17 years later, he paid off the balance of the loan. How much did he pay?
7. Lisa buys a car for \$16,500, and receives \$2400 for her old car as a trade-in value. Find the monthly payment for the balance if the loan is amortized over 5 years at 8.5%.
8. A car is sold for \$3000 cash down and \$400 per month for the next 4 years. Find the cash value of the car today if the money is worth 8.3% compounded monthly.
9. An amount of \$2300 is borrowed for 7 months at a simple interest rate of 16%. Find the discount and the proceeds.
10. Marcus has won a lottery paying him \$5000 per month for the next 25 years. He'd rather have the whole amount in one lump sum today. If the current interest rate is 7.3%, how much money can he hope to get?
11. In the year 2000, an average house in Star City cost \$250,000. If the average annual inflation rate for the past years has been about 4.7%, what was the price of that house in 2015?
12. Find the 'fair market' value of a ten-year \$1000 bond which pays \$30 every six months if the current interest rate is 7%. What if the current interest rate is 5%?
13. A Visa credit card company has a finance charge of 1.5% per month (18% per year) on the outstanding balance. John owed \$3200 and has been delinquent for 5 months. How much total does he owe, now?
14. You want to purchase a home for \$200,000 with a 30-year mortgage at 9.24% interest. Find
  - a. the monthly payment
  - b. the balance owed after 20 years.
15. When Jose bought his car, he amortized his loan over 6 years at a rate of 9.2%, and his monthly payment came out to be \$350 per month. He has been making these payments for the past 40 months and now wants to pay off the remaining balance. How much does he owe?
16. A lottery pays \$10,000 per month for the next 20 years. If the interest rate is 7.8%, find both its present and future values.
17. A corporation estimates it will need \$300,000 in 8 years to replace its existing machinery. How much should it deposit each quarter in a sinking fund earning 8.4% compounded quarterly to meet this obligation?
18. Our national debt in 1992 was about \$4 trillion. If the annual interest rate was 7% then, what was the daily interest on the national debt?
19. A business must raise \$400,000 in 10 years. What should be the size of the owners' monthly payments to a sinking fund paying 6.5% compounded monthly?
20. The population of a city of 80,000 is growing at a rate of 3.2% per year. What will the population be at the end of 10 years?
21. A sum of \$5000 is deposited in a bank today. What will the final amount be in 20 months if the bank pays 9% and the interest is compounded monthly?
22. A manufacturing company buys a machine for \$500 cash and \$50 per month for the next 3 years. Find the cash value of the machine today if the money is worth 6.2% compounded monthly.
23. The United States paid about 4 cents an acre for the Louisiana Purchase in 1803. Suppose the value of this property grew at a rate of 5.5% annually. What would an acre be worth in the year 2000?
24. What amount should be invested per month at 9.1% compounded monthly so that it will become \$5000 in 17 months?
25. A machine costs \$8000 and has a life of 5 years. It can be leased for \$160 per month for 5 years with a cash down payment of \$750. The current interest rate is 8.3%. Is it cheaper to lease or to buy?
26. If inflation holds at 5.2% per year for 5 years, what will be the cost in 5 years of a car that costs \$16,000 today? How much will you need to deposit each quarter in a sinking fund earning 8.7% per year to purchase the new car in 5 years?

27. City Bank pays an interest rate of 6%, while Western Bank pays 5.8% compounded continuously. Which one is a better deal?
28. Ali has inherited \$20,000 and is planning to invest this amount at 7.9% interest. At the same time he wishes to make equal monthly withdrawals to use up the entire sum in 5 years. How much can he withdraw each month?
29. Jason has a choice of receiving \$300 per month for the next 5 years or \$500 per month for the next 3 years. Which one is worth more if the current interest rate is 7.7%?
30. If a bank pays 6.8% compounded continuously, how long will it take to double your money?
31. A mutual fund claims a growth rate of 8.3% per year. If \$500 per month is invested, what will the final amount be in 15 years?
32. Mr. Vasquez has been given two choices for his compensation. He can have \$20,000 cash plus \$500 per month for 10 years, or he can receive \$12,000 cash plus \$1000 per month for 5 years. If the interest rate is 8%, which is the better offer?
33. How much should Mr. Shackley deposit in a trust account so that his daughter can withdraw \$400 per month for 4 years if the interest rate is 8%?
34. Mr. Albers borrowed \$425,000 from the bank for his new house at an interest rate of 4.7%. He will make equal monthly payments for the next 30 years. How much money will he end up paying the bank over the life of the loan, and how much is the interest?
35. Mr. Tong puts away \$500 per month for 10 years in an account that earns 9.3%. After 10 years, he decides to withdraw \$1,000 per month. If the interest rate stays the same, how long will it take Mr. Tong to deplete the account?
36. An amount of \$5000 is borrowed for 15 months at an interest rate of 9%. Find the monthly payment and construct an amortization schedule showing the monthly payment, the monthly interest on the outstanding balance, the amount of payment contributing towards debt, and the outstanding debt.

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