



4. (6 points) Determine the better investment: 3% compounded daily or 3.1% compounded quarterly. (Compute and compare the effective interest rates.)
5. (8 points) A 25-year-old plans to retire at age 50. She decides to invest an inheritance of \$80,000 at 7% interest compounded semiannually.
- (a) How much money will be in the account when she is 50 years old?
- (b) How much money is made in interest?
6. (6 points) After winning \$73,000 on a game show, Jasmine invests the money in a fixed-rate account offering 7.2% interest compounded quarterly. Use guess and check to determine about how long it will take for the account value to grow to \$100,000.

7. (6 points) A company needs to have \$4,000,000 in 10 years. The company will make semiannual payments into an account earning 8.75% compounded semiannually. How much will the semiannual payments be on the annuity?
8. (8 points) Suppose you open an annuity with quarterly payments of \$600 at 5% compounded quarterly for 15 years.
- (a) Find the future value of the annuity.
- (b) How much interest will you earn?
9. (6 points) Jamal has learned that he can get a new car by agreeing to make monthly payments of \$368 for five years. After reading the fine print, he realized that these monthly payments include a finance charge of 9.99% compounded monthly. How much would the car cost Jamal if he paid all at once in cash?

10. (18 points) A house sells for \$186,450 and a 9% down payment is made. For the remaining balance, a 15-year mortgage is secured at 3.2% compounded monthly.

(a) What amount is financed?

(b) What is the monthly payment?

(c) When the loan is paid off in 15 years, what will be the total interest paid?

(d) Compute the first 3 rows of the amortization schedule. Include the payment number, interest, amount paid to principal, and the outstanding balance.

11. (8 points) Compute each of the following.

(a)  $7!$

(b)  $\frac{200!}{2!199!}$

(c)  ${}_6P_4$

(d)  ${}_6C_4$

12. (3 points) A pizzeria offers single-topping pizzas with three choices of crust, two choices of sauce, and eight choices of toppings. How many different pizzas can be made?

13. (6 points) Decide whether the selection described is a combination or a permutation.
- (a) Five people in a meeting are selected to form a committee.
  
  - (b) A state elects a governor, lieutenant governor, and treasurer from a pool of 10 candidates.
  
  - (c) A state elects two senators from a pool of 12 candidates.
14. (4 points) How many different passwords can be made from the letters of the word *MISSISSIPPI*?
15. (6 points) In 5-card poker, each player is dealt 5 cards from a standard deck of 52 cards.
- (a) How many different 5-card hands can be dealt?
  
  
  
  
  
  
  
  
  
  
  - (b) How many different 5-card hands contain the ace of hearts?