FINM2063 Introduction to Finance

Chapter 2 Exercises

1. Holly wants to have $200,000 to send a recently born child to college. She sets up a plan and wants to know how much she must invest at the end of each year for the next 18 years if the funds can earn 5%. If she can earn 7%, how much less will she have to invest each year?
2. A widow currently has a $93,000 investment that yields 6% annually. Can she withdraw $14,000 for the next ten years? Would your answer be different if the yield were 9%?
3. An investment will generate $10,000 a year for 25 years. If you can earn 10% on your funds and the investment costs $100,000, should you buy it? Would your answer be different if you could earn only 7%?
4. This problem covers many of the features of a mortgage. You purchase a town house for $250,000. Since you are able to make a down payment of 20% ($50,000), you are able to obtain a $200,000 mortgage loan for 20 years at a 5% annual rate of interest.
   1. What are the annual payments that cover the interest and principal repayment?
   2. How much of the first payment goes to cover the interest?
   3. How much of the loan is paid off during the first year?
   4. What is the interest payment during the second year?
   5. What is the remaining balance after the second year?
   6. Why did the interest payment change during the second year?
5. You have an individual retirement account (IRA) worth $200,000 and want to start to make equal, annual withdrawals (that is, distributions from the account) for 20 years. You anticipate earning 5% on the funds.
   1. How much can you withdraw each year?
   2. Since you are earning 5% on your investment, how much of the withdrawal consumes your investments?
   3. How much will be in the account at the end of the first year?
   4. How much do you earn on your investments in the account during the second year?
   5. How much will be in the account at the end of the second year?
   6. Do you see any similarity between this problem and Problem 4?
6. A firm must choose between two investment alternatives, each costing $100,000. The first alternative generates $35,000 a year for four years. The second pays one large lump sum of $157,400 at the end of the fourth year. If the firm can raise the required funds to make the investment at an annual cost of 10%, which alternative should be preferred?
7. The First City Bank pays 7% interest, compounded annually, on time deposits. The Second City Banks pays 6.5% interest, compounded quarterly.
   1. Based on effective interest rates, in which bank would you prefer to deposit your money?
   2. Assume that funds must be left on deposit during the entire compounding period to receive any interest. Could your choice of banks be influenced by the fact that you might want to withdraw your funds during the year as opposed to at the end of the year?
8. Bank A pays 8% interest, compounded quarterly, on its money market account. The managers of Bank B want the rate on its money market account to equal Bank A’s effective annual rate, but interest is to be compounded on a monthly basis. What simple, or quoted, rate must Bank B set?