

Tutorial 2

#1:

First City Bank pays 8 percent simple interest on its savings account balances, whereas Second City Bank pays 8 percent interest compounded annually. If you made a \$5,000 deposit in each bank, how much more money would you earn from your Second City Bank account at the end of 10 years?

#2:

You are scheduled to receive \$20,000 in two years. When you receive it, you will invest it for six more years at 8.4 percent per year. How much will you have in eight years?

#3:

You are to make monthly deposits of \$300 into a retirement account that pays 10 percent interest compounded monthly. If your first deposit will be made one month from now, how large will your retirement account be in 30 years?

#4:

You are planning to save for retirement over the next 30 years. To do this, you will invest \$700 a month in a stock account and \$300 a month in a bond account. The return of the stock account is expected to be 11 percent, and the bond account will pay 6 percent. When you retire, you will combine your money into an account with a 9 percent return. How much can you withdraw each month from your account assuming a 25-year withdrawal period?

#5:

Your job pays you only once a year for all the work you did over the previous 12 months. Today, December 31, you just received your salary of \$50,000 and you plan to spend all of it. However, you want to start saving for retirement beginning next year. You have decided that one year from today you will begin depositing 5 percent of your annual salary in an account that will earn 11 percent per year. Your salary will increase at 4 percent per year throughout your career. How much money will you have on the date of your retirement 40 years from today?

#6:

You need a 30-year, fixed-rate mortgage to buy a new home for \$240,000. Your mortgage bank will lend you the money at a 6.35 percent APR for this 360-month loan. However, you can afford monthly payments of only \$1,150, so you offer to pay off any remaining loan balance at the end of the loan in the form of a single balloon payment. How large will this balloon payment have to be for you to keep your monthly payments at \$1,150?

#7:

The present value of the following cash flow stream is \$6,550 when discounted at 10 percent annually. What is the value of the missing cash flow?

Year	Cash Flow
1	\$1,700
2	?
3	\$2,100
4	\$2,800

#8:

Suppose you are going to receive \$10,000 per year for five years. The appropriate interest rate is 11 percent.

- What is the present value of the payments if they are in the form of an ordinary annuity? What is the present value if the payments are an annuity due?
- Suppose you plan to invest the payments for five years. What is the future value if the payments are an ordinary annuity? What if the payments are an annuity due?
- Which has the highest present value, the ordinary annuity or annuity due? Which has the highest future value? Will this always be true?

#9:

Suppose you have a \$1.5 million loan with semi-annual installments over 10 years. How much do you pay towards the principal in the second installment if the interest rate of this loan is 1.8% compounded quarterly?