

Time Value of Money Problems

Handout 3

1. Construct a loan amortization schedule for a 3-year 5% loan of \$10,000.
2. You plan to retire in 15 years. After retirement you will need \$20,000 per year. You think you will live 10 years after retirement. If interest remains at 8%, how much will you need to deposit until retirement?
3. You will deposit \$4000 per year for the next 12 years. Then you will start drawing money out of the account. If interest is 7%, how much could you draw out if you make equal annual withdrawals for three years?
4. You will deposit \$5000 per year for five years at 4%. Then you will just let the money sit there and draw interest. If interest in this second stage is 7%, how much would you have four years after the second stage starts?
5. You invest \$4000 today at 6% interest and let accumulate for seven years. Interest will be compounded semiannually. If after that you make 3 annual withdrawals of \$2305, what annual rate of interest are you earning?

Annuities due

6. You deposit \$4000 at the beginning of the year for 10 years at 4% interest. How much will your investment be after 10 years?
7. How much must you deposit today in order to make five equal annual withdrawals of \$6000 if withdrawals are made at the beginning of the year?

Rework problems 2-4. In 2, assume the deposits are annuities due and the withdrawals are ordinary annuities. In 3, assume the withdrawals are annuities due and the deposits are ordinary annuities. In 4, assume all annuities are annuities due.