1. An investor deposits 10,000. in a bank account
   a) Find the value of the investor's deposit 6 months after
      the deposit if the bank gives simple interest at 11% per year.
   b) Find the value of the investor's deposit 6 months after the deposit if
      the bank gives 12% per year convertible quarterly.
2. Find the effective rate of interest if payments of 200 at t = 0, 100 at t = 1
   year and 300 at t = 2 years accumulate to 800 in 3 years.
3. Let i be the annual rate of interest. Find the present value (at t = 0) of an
   annuity that pays $\frac{1}{4}$ at the end of each quarter of a year for 10 years.
4. An investor accumulates a fund by making payments at the end of each
   month for 5 years. Her monthly payment is 100 for the first year, 200 for
   the next two years and 300 for the following two years. At the end of the
   seventh year the fund is worth 20,000. Let i be the annual effective
   interest rate and j be the monthly effective interest rate. Give an equation
   of value for the fund accumulation at the end of 7 years. Express the
   equation in terms of i, j, and 20,000.
5. A borrower repays a loan with 20 annual payments of 200 each. With the
   tenth payment, the borrower pays an additional 1000 and then repays the
   balance over 5 years with a revised annual payment. The effective rate of
   interest is 8%. Determine the amount of the revised annual payment.
6. An annuity consists of 20 payments of 1, the first payment to be made at
   the end of 5 years and the following payments to be made at two year
   intervals until the 20 payments have been made. The annual effective
   interest rate is 5%. Find the present value (t = 0) of the annuity.
7. A loan is repaid by annual payments continuing forever where the first
   payment is due at t = 1 year. Let the effective rate of interest be i. Find
   an expression for the amount of the loan if the annual payments are 1, 3,
   1, 3, ...