1. A loan of 1,000 is being repaid with quarterly payments at the end of each quarter for five years at 6% convertible quarterly. Find the outstanding loan balance at the end of the second year.

2. A loan of 2,000 is to be repaid in quarterly installments. The annual interest rate is 10% per annum effective. Find the amount of principal outstanding just after the repayment after four years
   (a) If the quarterly installments are of equal amount, chosen so that the loan is to be repaid in 10 years;
   (b) if the quarterly installments are of equal amount 100 for n quarters, plus a drop payment after n + 1 quarters.

3. A 100,000 loan is to be repaid by 30 equal payments at the end of each year. The outstanding balance is amortized at 4%. In addition to the annual payments, the borrower must pay an origination fee at the time the loan is made. This fee is 2% of the loan, but does not reduce the loan balance. When the second payment is due, the borrower pays the remaining loan balance. Determine the yield to the lender considering the origination fee and the early pay-off of the loan.

4. Draw up an amortization schedule for a loan of 100 to be repaid by 4 equal annual installments at $i = 10\%$ effective.

5. Deposits of 1000 are made into an investment fund at time 0 and time 1. The fund balance is 1200 at time 1 and 2200 at time 2.
   (a) Compute the annual effective yield rate computed by the dollar-weighted calculation (assume compound interest).
   (b) Compute the annual effective yield rate computed by the time-weighted calculation.