

TD2 Loan

Exercise 1. What is the present value of an annuity of 100 dollars per annum for 5 years at an annual interest rate of 6.25%.

Exercise 2. What rate of interest compounded quarterly is required for a deposit of 5000 today to accumulate to 10,000 after 10 years?

Exercise 3. Suppose that an annuity pays 5,000 dollars per month for 9 years with an interest rate of 7.125% compounded monthly. What is its present value?

Exercise 4. A home buyer takes out a 15-year 250,000 dollars loan at an 8% interest rate. Find the payment which is paid monthly.

Exercise 5. Instead of making payments of 300, 400, and 700 at the end of years 1, 2, and 3, the borrower prefers to make a single payment of 1400. At what time should this payment be made if the interest rate is 6% compounded annually?

Exercise 6. An investor purchases an investment which will pay 2000 at the end of one year and 5000 at the end of four years. The investor pays 1000 now and agrees to pay X at the end of the third year. If the investor uses an interest rate of 7% compounded annually, what is X ?

Exercise 7. A company has borrowed 800,000\$ from a bank. The loan is to be repaid by level instalments payable annually for 10 years from the date the loan is made. The annual repayments are calculated at an effective rate of interest of 8% per annum.

- (i) Calculate the amount of the level annual payment and the total amount of interest which will be paid over the 10 year term.
- (ii) At the beginning of the 8th year, immediately after the 7th payment has been made, the company asks for the term of the loan to be extended by 2 years. The bank agrees to do this on condition that the rate of interest is increased to an effective rate of 12% per annum for the remainder of the term. Calculate the amount of the new payment.