1 In-class example for Ch2

1. Smith wishes to buy a TV set and is offered a time payment plan whereby he makes 24 monthly payments of 30 each starting now. Smith wants the payments to start in 2 months rather than now. If interest is at a one-month interest rate of 1%, what is the present value now of the saving to Smith if the seller agrees to Smith's terms?

2. To accumulate 8000 at the end of $3n$ years, deposits of 98 are made at the end of each of the first n years and 196 at the end of each of the next $2n$ years. The effective annual rate of interest is i. You are given $(1 + i)^n = 2.0$. Determine i.

3. An $m + n$ year annuity of 1 per year has $i = 7\%$ during the first m years and has $i = 11\ \%$ during the remaining n years. If $S_{m\rceil.07}= 34$ and $S_{n\rceil.11} = 128$, what is the accumulated value of the annuity just after the final payment?

4. Chuck needs to purchase an item in 10 years. The item costs 200 today, but its price inflates 4% per year. To finance the purchase, Chuck deposits 20 into an account at the beginning of each year for 6 years. He deposits an additional X at the beginning of years 4, 5, and 6 to meet his goal. The effective annual interest rate is 10%. Calculate X.

5. A perpetuity-immediate pays 100 per year. Immediately after the fifth payment, the perpetuity is exchanged for a 25-year annuity-immediate that will pay X at the end of the first year. Each subsequent annual payment will be 8% greater than the preceding payment. The annual effective rate of interest is 8%. Calculate X.

6. At an annual effective in.terest rate of i, the present value of a perpetuityimmediate starting with a payment of 200 in the first year and increasing by 50 each year thereafter is 46,530. Calculate i.

7. An annuity-immediate pays 20 per year for 10 years, then decreases by 1 per year for 19 years. At an annual effective interest rate of 6%, the present value is equal to X. Calculate X.