MATH 210 THEORY OF INTEREST SPRING 2016
PROFESSOR WANG

Homework 5 (max. points = 10)
Due at the beginning of class on Thursday, March 3, 2016

You are encouraged to work on these problems in groups of no more than 4. However, each student must hand in her/his own answer sheet. Please show your work enough to show that you understand how to do the problem -and circle your final answer. Full credit can only be given if the answer and approach are appropriate. Please give answers to two decimal places -e.g., xx.xx% and $xx,xxx.xx.

Section 3.7. (1) (4)

Section 3.8. (5)

Section 3.9. (2) (6)

Section 4.2. (2)

Additional Problems.

1. A perpetuity makes quarterly payments, with the first payment being $2,000, and each subsequent payment being $220 greater than the previous payment. The effective annual interest rate is 10%. Find the present value of this perpetuity two years before the first payment.

2. Two growing perpetuities, each with annual payments, have the same yield rate (i.e., the same interest rate applies to both). The first perpetuity has an initial payment of $500 one year from now, and each subsequent annual payment increases by $100. The present value of this first perpetuity is $19,500. The second perpetuity is a perpetuity-due and has an initial payment of $750 now, and each subsequent annual payment increases by 4%. Find the present value, now, of the second perpetuity.

3. A 8-year annuity makes payments at the end of each month. The first payment is $20,000, and thereafter each subsequent monthly payment is $100 less than the previous payment. The interest rate is 9% convertible monthly. Find the present value of this annuity, two month prior to the first payment.

4. A 25-year annual-payment annuity pays X the first year, and then each subsequent payment is 3% higher than the previous year's payment. Assume that the effect annual interest rate is 8%. The present value of this annuity, five years prior to the first payment is 50,000. Find X.