Mth 21, Homework 10 on sections 5.3, 5.4
Extra Credit
Due by Mon, Nov 27.

Please use lots of space and explain your answers, showing clearly any work you had to do. Each question is worth 3 points. This set is extra credit so it can make up for low scores on earlier homeworks.

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(1) Jose makes monthly payments of $200 to an annuity earning 6% interest for 10 years.

  (a) What is the annuity worth at the end?

  (b) Give Jose's total contribution.

  (c) Find the total interest.

  (Hint: for part (a) use $FV = pymt((1 + i)^n - 1)/i$ and you should get an answer close to $30\,000$.)

(2) Find the monthly payments to an annuity earning 6% interest for 10 years so that it is worth 50000 at the end.

(3) You buy a car for $18\,200$ and take out a loan for the full amount. The bank charges 15% interest. What are the monthly payments to pay off the car in 8 years?

  (Hint: use the amortized loan formula $pymt((1+i)^n - 1)/i = P(1+i)^n$ coming from FV annuity = FV compound interest. Here P is the loan amount, i is the periodic interest rate and n is the number of periods..)

(4) In Question 3, suppose you borrowed $18\,200$ from this bank and paid it back in one lump sum 8 years later. How much must you pay?

  (Hint: this is the $P(1 + i)^n$ amount.)

(5) For Question 3 make an amortization schedule for the first two payments. Show each total payment, the principal portion, the interest portion and the balance.

(6) You take out a $250\,000$ mortgage at 8% interest for 20 years. What are your monthly payments?

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.

- Check if you get the right answer for a similar odd-numbered question in the textbook (answers at the back of the book).

- Ask me about it after class.

- Come to my office hours: Mon 11:30 - 12:30, Wed 11:30 - 12:30 in CP 317.

- Go to the Math Tutorial Lab in-person in CP 303 or online.