

**Econ 353, Spring 2012**

**Instructor: Sunanda Roy**

**Homework # 2,**

**Hardcopy due, Feb 21 (Tues), in class**

**Electronic files or multiple unstapled sheets will not be accepted. Late submission will not be accepted except for reasons of family and medical emergencies.**

**Please show all formulas and expression used to derive your answers. Points will be taken off if explanations are not provided even if final answers are correct. You may use any calculator you like. However for most of the questions, the numbers have been chosen such that you don't need one.**

1. An asset pays \$1000 at the end of year 1, \$0 at the end of year 2, \$1000 at the end of year 3. (You are at the beginning of year 1.) What is the PV of the asset at 8% average interest rate?
2. Write down the formula that is used to calculate the YTM on a \$1000 face value 10-year T-note with a 7.5% coupon rate which is selling for \$950. No final value for the YTM is needed.
3. A 30-year coupon bond pays a coupon rate of 5.75%, has a face value of \$1000 and is currently being sold for \$1000. Without using a calculator, find its YTM and explain your answer.
4. Calculate the current yield on the T-note in Problem 2.
5. You buy a 3-year, 10% coupon bond with face value \$1000 today. The market interest rate currently is 10% also.
  - a. What is the market price of the bond today? (5 pts)
  - b. You hold the bond for a year and sell it off a year later when the interest rate is 8%. What is the market price of the bond a year later? (5pts)
  - c. What is your one period rate of return on the bond? (5pts)
  - d. Without using a calculator, argue your way through to an answer to the following question. Suppose this had been a 5-year instead of a 3-year bond. Everything else about the bond remains the same. Would the one-period rate of return be higher or lower compared to your answer in c), if the interest rate rose to 8% next year? (5pts)
- 6.a) An asset pays \$1,100 at the end of year 1, \$1,210 at the end of year 2, and \$1,331 at the end of year 3. It has a market price of \$3,000. Write down an equation that provides its yield to maturity (YTM) and find its value.

b). Suppose, that the market price of the asset is \$2,500 instead. Without using a calculator, argue your way through to an answer to the following question: Is the new YTM higher or lower compared with the previous one? (5 pts)

c). Assume that the current market interest rate is 5%. What does the **fundamental theorem of finance** say the appropriate competitive market price of the asset should be (provide a number)? (5 pts)

7. Suppose that the price level rises by 5% in a year. You have \$1000 in a savings account at 3% interest rate. What is the real rate of return from the account?