Examination 2

Directions: You have 55 minutes from the start of class to finish this exam. Use your time wisely. Do your own work. No calculators, textbooks, or other aids permitted. Show all work!

1. Use the given information to answer the posed questions. You'll need the Marginal Tax Rates chart on the formula sheet to complete this question.

   Wages: $82,000
   State Taxes Paid: $1,000
   Interest on a Home Mortgage: $4,000
   Charitable Donations Totaling: $500
   Bank Account Interest Earned: $700
   Tips Earned: $350
   Filing status: Single

   a. Do you suggest that this person itemize? Why or why not? **(3 pts)**

   b. What is this person's gross income (GI)? **(5 pts)**

   c. Adjusted Gross Income (AGI) = what? (circle your answer) **(2 pts)**
      i. AGI = gross income – adjustments – deductions
      ii. AGI = gross income + deductions
      iii. AGI = gross income – deductions – exemptions
      iv. AGI = gross income – adjustments
      v. AGI = gross income – deductions

   d. Assuming Terry has a taxable income of $100,000 and has a filing status of "single," set up the computation for the marginal taxes she owes. Note: she has no tax credits. **(10 pts)**

2. Solve the following algebraic equations for the indicated variable. You must show work and be organized.
   a. Solve the compound interest formula for the APR. **(8 pts)**

   b. Solve the following for 'x': $3x + 5 = 2x$ **(7pts)**

   c. Solve the following for 't': $2t - 100 = 100$ **(5 pts)**

3. Consider the cost of the following trans-Atlantic flights:

   Flight A: $900
   Flight B: $1,000
   Flight C: $800

   a. Using flight C as the reference value, compute the absolute difference between flights A and C **(5 pts)**.

   b. Using flight C as the reference value, compute the absolute difference between flights B and C **(5 pts)**.

c. What is the relative difference between the prices of flights B and A, using flight A as the reference value **(6 pts)**? You may leave the answer as a fraction.

d. If the cost of flight B were to go up, but the price of flight A remained the same, what would this do to the **relative** difference between them if flight A were used as the reference value? Make sure you explain your answer! **(4 pts)**

4. Clair wants to retire in 35 years. She determines she can set aside $200 every two months for this 35 year period. She would like to know how much money she will have in her bank account (IRA) at the end of 35 years. Her IRA has the following properties:

Annual % Rate: 7%
Interest compounded every 2 months

Clair sets up the Savings Plan Formula as follows. Explain what is wrong with her setup. HINT: There are 4 errors. **(5 pts per error)**

$$A = PMT \times \frac{\left[\left(1+\frac{APR}{n}\right)^{-n\cdot y}+1\right]}{\frac{APR}{n}}$$

$$A = \$200 \times \frac{\left[\left(1+\frac{7}{2}\right)^{-2\cdot 35}+1\right]}{\frac{7}{2}}$$

YOUR ANSWER:

5. Set up the continuous compounding formula with the following information and answer the posed question:

   Annual Percentage Rate: 10%
   Years = 5
   Starting Principal = 500,000 yen

   a. Set up the continuous compounding formula **(9 pts):**

   b. Now, suppose you have a bank account that pays APR = 10%. Your starting principal is 500,000 yen and you leave the money in the account for 5 years. The bank compounds interest once per year. Select the correct formula from the formula sheet and set it up with the given numbers **(9 pts)**.

   c. TRUE OR FALSE: If you were to compute the answers in parts 'a' and 'b', the answer in part 'a' would be larger. Why did you choose your answer?(**2 pts)**