Mathematics 105     Project #2     Due: Wednesday, October 29, 2003

Your Uncle George has just won $40,000 in the Kentucky Lottery. He will share those winnings with your Project Team if you will help him decide how to invest his winnings. Prepare a report to Uncle George responding to his questions below in complete sentences, augmented by calculations as necessary.

Unless otherwise instructed, please use (1) conventional rounding in determining financial amounts to the nearest penny and (2) interest rates to two decimal places when expressed as percentages.

“I am considering investing in three different banks. Bank A has a 4-year CD (Certificate of Deposit) which pays 5.55% compounded quarterly. Bank B has a 4-year CD which pays 5.1% compounded monthly the first year, 5.4% compounded monthly the second year, and 5.97% compounded monthly the third and fourth years. Bank C will let you invest your $40,000 in a bond which will pay you $50,000 at the end of the four years.”

1. “If I invest my winnings in Bank A or Bank B how much will it be worth in four years?”

2. “What are the annual percentage yields (APYs) for the CDs from Banks A and B?” (Note: for the APY of Bank B see Section 2.5 of the text.)

3. “What is the annual compound interest rate (APY) that the bond from Bank C is paying?”

4. “Which of these three banks is the best investment, and which ranks second?” (Be sure to use your work in 1., 2., and 3. to address this question. Also explain why or how the calculations from 1. lead to the same ranking as the calculations from 2. and 3.)

5. “The Trust Department of Bank A above is also willing to guarantee its stated rate of interest for the next 20 years. What is the minimum number of quarters that my winnings will have to be invested with Bank A until it has at least doubled in value? At the end of this full number of quarters, what will the actual value of my investment be?”

6. “Boy, I’d really like to purchase two PT Cruisers for Aunt Millie and myself; they now sell for $23,500 apiece! If Daimler-Chrysler AG projects that the price of this model will rise at a rate of 2.8% compounded annually over the next four years, (a) what will be the cost of this car four years from now [to the nearest $10] and (b) at what APY do I need to invest my $40,000 winnings now in order to have enough money to pay cash for the two PT Cruisers four years from now?”

7. “A friend says that if I give him the $40,000 today he will pay me $24,000 two years from now and another $24,000 at the end of the four years. Assuming my bank will always have a 2-year CD available at a 5% APY (and assuming I can trust my friend to actually pay what he promised), how does the “investment” of my $40,000 with my friend compare to the three banks listed above?”

If your Project Report is insightful and cogent enough, with correct calculations and well-reasoned conclusions, Uncle George promises to share his winnings with you!

Be sure to fill in and submit the Cover Sheet on the back with your project!