Math 105-21 Summer Term II
TEST 1 Name: _____
Score: _____ Signature: _____

For full credit, show all your work and explain your answers.

Equations:

Compound Interest:	Simple Interest:	All Interest:
$F = P(1+i)^m$	$I = Prt$	$F = P + I$
$m = n \cdot t$ and $i = \frac{r}{n}$	$F = P + Prt$	

1. (*25 points*) You need to borrow \$5000 for school. You plan on paying the loan back in 1 year. You have 3 options:
Bank A- 6% Annual Simple Interest
Bank B- 5.75% Interest Rate, Compounded Monthly
Bank C- 5.9% Interest Rate, Compounded Quarterly
A-C) Calculate the Interest paid on each loan.

D) Which one should you pick? (For this problem it is important not to round until the end!)

2. (*15 points*) John's investment of \$1,000 grew to \$2,388.20 in 11 years. What annual rate of interest did this investment earn? Round your answer to two decimal places when written as a percentage.

3. (*15 points*) Suppose you invest \$5,000 at 7.5% compounded monthly. What is the minimum amount of time, in years and months, for which this principal must be invested in order to grow to \$10,000?

4. (*25 points*) You decide to save up money for a new car. The car currently costs \$25,560, and its estimated that it will increase due to inflation at a rate of 4% annually (compounded) over the next 4 years.

A) What will the car cost in 4 years?

B) How much money should you put into an investment predicted to earn 10% annual compound interest in order to buy the car in cash in 4 years?

5. (*20 points*) Consider two (2) CD's that both have simple interest. The first is a 9 month CD, paying 5% annually. The second is an 18 month CD, paying 3% annual interest. If time is not an issue to you, which CD should you pick to invest $1000 into for the length of the CD? (Recall CD's only pay interest for the specified length of the CD)

6. (*25 points*) Your grandma gave you $10,000 for college. You got a scholarship, and don't need the money for tuition. Your plan is to invest the money and use the interest earned to pay for books each semester. If you need $500 per semester ($1000 per year) for books, what is the minimum interest rate you need for your investment, if it is compounded quaterly?

7. (*25 points*) In 1980 the Federal Deficit was \$0.9 trillion dollars. In 2000 it was \$5.67 trillion dollars.

A) How much did the deficit change from 1980 to 2000?

B) The CPI in 1980 was 82.4, in 2000, the CPI was 169.2. What was the 1980 Federal Deficit in terms of purchasing power in the year 2000?

C) Using the CPI from (B), what annual 1980 income would be equal to \$50,000 in the year 2000?