

Name: \_\_\_\_\_ MTH 109 CDD Test 1      October 2007

This test consists of 7 problems. Do each problem in the space provided. You are allowed to use a calculator; but to get partial credit for incorrect answers, your reasoning must be clear. A separate sheet containing relevant formulas and tables will be provided, but this sheet **must be turned in** with the completed test.

**Rounding rules:** For problems involving money, round your final answer to the nearest cent. For problems involving percentages, round your final answer to two decimal places.

Problem	Max Points	Earned Points
1	12	
2	13	
3	16	
4	14	
5	15	
6	15	
7	15	
Total	100	

1. (a) The average price of gasoline went from \$2.27 per gallon in March of 2007 to \$3.13 per gallon in May of 2007. What is the percent increase of in the price of gasoline over this period of time?

(b) The average price of gasoling fell from \$1.28 per gallon in September 1997 to \$1.04 in March of 1998. What is the price decrease of gasoline over this period of time?

2. (a) A friend of yours asks if she can borrow \$150 from you for one month. She offer to pay you 10% annual simple interest. How much must your friend pay you back at the end of the month?

(b) Another friend asks to borrow \$150 for one month. This friend offers to pay you back \$155 at the end of the month. What annual rate of simple interest are you getting? (Express your answer as a percent.)

3. (a) You inherit \$20,000 and decide to invest it for retirement. The bank will pay you a fixed rate of 5% interest compounded monthly. How much will your money be worth in 20 years if you invest it in this way?

(b) What is the effective annual yield (APY) of the bank's offer?  
(Express your answer as a percent.)

4. (a) You are planning to buy a house in 10 years, and you expect to need \$30,000 for a down payment. How much money would you have to invest today, at a rate of 7% compounded monthly, in order to have enough money for your down payment 10 years from now?

(b) Suppose you have \$16,000 to invest, but you can only get 7% annual *simple interest*. How many years would it take your money to grow to \$30,000?

5. You decide to buy a car for \$20,000 by paying in monthly installments. You finance the car by making a down payment of \$2000 and paying 7% APR for 3 years.

(a) Determine the total finance charge.

(b) Determine the monthly payment.

(c) How much will you end up paying in total for the car after 3 years? (Make sure to include the down payment.)

6. You are still paying off a car that you bought for \$15,000 with no down payment. At the end of the month, the 18th of 48 monthly payments of \$350 is due. You are considering paying off the remaining balance and terminating the loan.

(a) Estimate (to the nearest half percent) the annual percentage rate (APR) of your current financing arrangement.

(b) Determine how much interest you would save if you pay off the car at the end of the month.

(c) What is the total amount of money due at the end of the month to pay off the car and terminate the loan?

7. Your credit card charges you a **monthly** interest rate of 1.5%. On January 1, the billing date, your credit card balance is \$502.00. During the rest of January—a month with 31 days—the following transactions took place:

January 10	Charge: clothes	\$150.00
January 15	Payment	\$421.00
January 21	Charge: restaurant	\$39.00

(a) Find your average daily balance over the month of January.

(b) Using the **average daily balance method**, determine your new balance on the first of February.

**End of Test**

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*If you have any comments about the test or about the course, please write them here:*