Math 110
Exam 1
Fall 2006

Show all work in a neat and organized fashion. Clearly indicate your answers.
100 points possible.

The following formulas may or may not be useful.

$A = PB$

Sales tax amount = tax rate × item's cost

Discount amount = discount rate × original price

$$\text{Percent increase} = \frac{\text{amount of increase}}{\text{original amount}}$$

$$\text{Percent decrease} = \frac{\text{amount of decrease}}{\text{original amount}}$$

$I = Prt \qquad A = P(1 + rt)$

$A = P(1 + r)^t$

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$P = \frac{A}{\left(1 + \frac{r}{n}\right)^{nt}}$$

$$Y = \left(1 + \frac{r}{n}\right)^{n} - 1$$

$$PMT = P\frac{\frac{r}{n}}{1 - \left(1 + \frac{r}{n}\right)^{-nt}}$$

$$PMT = P\frac{i}{1 - (1 + i)^{-m}}$$

Amount financed = Cash price − Down payment

Total installment price = Total of all monthly payments + Down payment

Finance charge = Total installment price − Cash price

$$\text{Finance charge per \$100 financed} = \frac{\text{Finance charge}}{\text{Amount financed}} \times \$100$$

0. (20 pts.) The take-home Excel problems are worth 20 points total.

1. (5 pts.) Express $\frac{9}{80}$ as a percent.

2. (5 pts.) 74.2 is 56% of what?

3. (5 pts.) An exercise machine with an original price of \$990 is on sale at 8% off. What is the exercise machine's sale price?

4. (5 pts.) A college that had 40 students for each lecture course increased the number to 45 students. What is the percent increase in the number of students in a lecture course?

5. (5 pts.) You borrow \$5,200 at a simple interest rate of 6% for 120 days. How much simple interest will you owe for the use of the money? (Assume 360 days in a year.)

6. (5 pts.) You borrow \$12,600 for 8 months. The loan's future value is \$13,400. Determine the loan's simple interest rate, to the nearest hundredth of a percent.

7. (10 pts.) You borrow \$5,400 on a 12% discounted loan for a period of 5 months.

(a) What is the loan's discount?

(b) What is the net amount of money you receive?

(c) What is the loan's actual interest rate, to the nearest hundredth of a percent?

8. (5 pts.) You deposit \$11,600 in a savings account that has a rate of 9%. The interest is compounded semiannually.

(a) How much money will you have after eight years?

(b) Find the interest after eight years.

9. (5 pts.) How much money should be deposited today in an account that earns 5% compounded quarterly so that it will accumulate to $25,000 in six years?

10. (5 pts.) A passbook savings account has a rate of 4.5%. Find the effective annual yield, rounded to the nearest hundredth of a percent, if the interest is compounded monthly.

11. (5 pts.) A loan of $30,500 is to be amortized with 42 equal monthly payments. If the interest rate is 8%, compounded monthly, what is the periodic payment?

12. (10 pts.) A loan of $260,000, with interest at 7% compounded semiannually, is to be repaid by making several equal semiannual payments of $18,293.88. Fill in the first two rows of the amortization schedule, for the first two semiannual payments.

Period	Payment	Interest	Balance Reduction	Unpaid Balance
				260,000.00
1				
2				

13. (5 pts.) The cost of a car is $25,600. We can finance this by paying $1,500 down and $520 per month for 60 months.

(a) Determine the amount financed.

(b) Determine the total installment price.

(c) Determine the finance charge.

14. (5 pts.) A used car is financed for $6550 over 36 months. If the total finance charge is $1220, find the APR for this loan.