Name:_____

Test 4
The Mathematics of Money
A&S 100
Fall 2002

Objectives.

You should be able to do the following:

1. Demonstrate understanding of the following terms:
   (a) simple interest
   (b) principal
   (c) present value
   (d) future value
   (e) compound interest
   (f) annual percentage yield; APY
   (g) inflation
   (h) systematic savings plan
   (i) amortized loan; amortization schedule
   (j) loan balance
2. Know and be able to apply the following rules of exponents:
   (a) For m and n positive integers and $x \neq 0$,
      - $x^n = x \cdot x \cdot x \cdot \cdots \cdot x$ where there are n x's
      - $(x^{-n}) = \frac{1}{x^n}$
   (b) For a positive number x and any exponents m and n,
   $$(x^m)^n = x^{mn}$$
   (c) For a positive number x and n a positive integer,
   $$\sqrt[n]{x} = x^{\frac{1}{n}}$$
   (d) For $x > 0$ and $m \neq 0$,
   $$(x^m)^{\frac{1}{m}} = x^1 = x$$
3. Know and be able to apply the following rule of logarithms:

(a) For any positive number x and any real number m,

$$\log x^m = m \log x$$

4. Solve equations involving exponents and logarithms.

5. Recognize that rounding answers at intermediate steps of interest calculations can produce significant errors in the final answer.

6. Use the following formulas at appropriate times to do financial calculations:

   (a) $I = Prt$

   (b) $F = P(1 + rt)$

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

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

   (e) $F = D\left(\frac{(1+\frac{r}{n})^{nt}-1}{\frac{r}{n}}\right)$

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

7. Calculate a loan balance.

8. Construct an amortization table.

* Remember that Test 4 is cumulative. Therefore, you are also responsible for all material covered on previous exams.