Homework 6 - due 10/11/07

First and Last Name: .....

Show all your work in answering the following questions. Simply writing the answer is not acceptable. Staple all your pages together. The professor is not responsible for lost pages.

1. Use the formula to find the value of the indicated variable for the values given.
   (a) $F = \frac{Gm_1m_2}{r^2}$; find m_1 when $F = 700$, $G = 0.5$, $m_2 = 200$ and $r = 2$.(physics)
   (b) $A = p(1 + rt)$; find r when $A = 2400$, $p = 600$ and $t = 10$. (economics)

2. Solve for the variable indicated
   (a) $E = mc^2$ for m
   (b) $A = p(1 + rt)$ for t.

3. If P is the price of an item today, the price of the same item n years form today, P_n is $P_n = P(1 + r)^n$. where r is the constant rate of inflation. Determine the price of a movie ticket 5 years from today if the price today is \$7.00 and the annual rate of inflation is constant at 3.1%.

4. Write an equation and solve.
   (a) 2 less than five times a number is 12.
   (b) A number increased by 5 is 1 less than 3 times the number.

5. Budget Warehouse has a plan whereby for a yearly fee of \$90 you save 15% of the price of all items purchased in the store. What is total amount you need to spend during the year for the savings to equal the yearly fee?