Worksheet 11 Name:_____
A&S100
06 December 2002

1. "A penny saved is a penny earned," is a proverb from Benjamin Franklin's *Poor Richard's Almanac.*

    (a) Suppose that you deposit a penny into a savings account every day; if the account earns 7% interest compounded daily, how much money would you have at the end of 10 years? 50 years?

    (b) According to Consumer Price Index estimates found at
    http://www.orst.edu/dept/pol_sci/fac/sahr/sahr.htm,
    you would need about $0.18 to purchase the same goods and services as Benjamin Franklin could purchase with a penny in 1790, the year of his death. If you deposit $0.18 every day into a savings account that earns 7% interest compounded daily, how much money would you have at the end of 10 years? 50 years?

2. The following problem was taken from *Mathematics for the Modern World*, a math text by Dale Hathaway.

    According to legend, the Indians sold Manhattan in 1626 for $24 worth of trinkets. Suppose that th Indians had been able to invest the $24 in a savings account paying 5% interest, compounded annually. How much would they have 370 years later, in 1996? Is the answer in millions, billions, or trillions of dollars? How much would they have if the interest is compounded quarterly?

3. Suppose that you have won $1,000,000. Which would you prefer: to receive a single lump payment of $1,000,000 or to receive ten payments of $100,000 over the next ten years? Justify your answer.

4. Mary is 25 years old. She wishes to have $1,000,000 saved by the time she retires at age 65. She wishes to make monthly payments into an account which pays 5% interest compounded monthly. How much money does she need to put in the account each month?