

Section 2.1 (cont.)

5) In class example #1 of section 1.3, we saw that if \$1000 is deposited into an account that earns 4% interest compounded annually and no further deposits or withdrawals are made, the amount A in the account at the end of t years is $A = 1000(1 + .04)^t$.

- Suppose P dollars are deposited instead of \$1000. What is the new formula for A ?
- Suppose the P dollars are invested at r % (expressed as a decimal) instead of 4%. What is the new formula for A ?
- Suppose the P dollars invested at r % interest have the interest compounded n times a year instead of annually. What is the new formula for A ?
- Suppose the P dollars invested at r % interest have the interest compounded continuously. What is the new formula for A ?

6) You have two investment choices, one with an APR of 4.9% compounded continuously and the other with an APR of 5% compounded annually. Which is the better option?

Section 2.2

1) The price (in cents) for first class postage in the United States can be modeled by the function $y = .014x^2 - 1.242x + 29.427$ cents, x years after 1900.

- Find the average rate of change of the price of first class postage from 1980 to 1990.
- Estimate the rate of increase in first class postage in 1990.

2) The graph shows the annual net income in millions of dollars for NIKE, Inc., from 1987 through 1993. The slope of the curve at point A (year = 1989) is 63.6. (Source: based on data from *Hoover's Company Profiles*, 1997)

- What should be the units on the slope at point A ?
- How rapidly was NIKE's net income growing in 1989?
- What is the instantaneous rate of change of net income at point A ?
- What is the slope of the tangent line at point A ?

