1. Calculate the present value of $5,000 received five years from today if your investments pay:

a. 6 percent compounded annually

b. 8 percent compounded annually

c. 10 percent compounded annually

d. 10 percent compounded semi-annually

e. 10 percent compounded quarterly

What do your answers to these questions tell you about the relation between present values and interest rates and between present values and the number of compounding periods per year?

2. Calculate the future value in five years of $5,000 received today if your investments pay:

a. 6 percent compounded annually

b. 8 percent compounded annually

c. 10 percent compounded annually

d. 10 percent compounded semi-annually

e. 10 percent compounded quarterly

What do your answers to these questions tell you about the relation between future values and interest rates and between future values and the number of compounding periods per year?

3. Calculate the present value of the following annuity streams:

a. $5,000 received each year for 5 years on the **last** day of each year if your investments pay 6 percent compounded annually.

b. 5,000 received each year for 5 years on the **last** day of each quarter if your investments pay 6 percent compounded quarterly.

c. 5,000 received each year for 5 years on the **first** day of each year if your investments pay 6 percent compounded annually.

d. 5,000 received each year for 5 years on the **first** day of each quarter if your investments pay 6 percent compounded quarterly.

4. Calculate the effective annual return on an investment offering a 12 percent interest rate, compounded annually.

5. The current one-year Treasury-bill rate is 5.2 percent, and the expected one-year rate 12 months from now is 5.8 percent. According to the unbiased expectations theory, what should be the current rate for a two-year Treasury security.

6. Suppose we observe the following 1R1 = 8%, 1R2 = 10%. If the unbiased expectations theory of the term structure of interest rates holds. What is the one-year interest rate expected one year from now E(2~r1)?

7. A recent edition of the Wall Street Journal reported interest rates of 2.25 percent, 2.60 percent, 2.98 percent, and 3.25 percent for three-year, four year, five year, and six year Treasury note yields, respectively, According to the unbiased expectation theory of the term structure of interest rates, what are the expected one-year rates for 4, 5, and 6?