Problems for Section 5.2

Problem 1. In the following exercises, calculate, to the nearest cent, the future value of an investment of $10,000 at the stated interest rate after the stated amount of time.

a. 3%/year, compounded annually, after 10 years
b. 4%/year, compounded annually, after 8 years
c. 2.5%/year, compounded quarterly (4 times/year), after 5 years
d. 1.5%/year, compounded weekly (52 times/year), after 5 years
e. 6.5%/year, compounded daily (assume 365 days/year), after 10 years

Problem 2. In the following exercises, calculate the present value of an investment that will be worth $1000 at the stated interest rate after the stated amount of time.

a. 10 years, at 5%/year, compounded annually
b. 5 years, at 6%/year, compounded annually
c. 5 years, at 4.2%/year, compounded weekly (assume 52 weeks per year)

Problem 3. In the following exercises, find the effective annual interest rates of the given annual interest rates. Round your answers to the nearest 0.01%.

a. 5% compounded quarterly
b. 5% compounded monthly

Problem 4. You deposit $1000 in an account at the Lifelong Trust Savings and Loan that pays 6% interest compounded quarterly. By how much will your deposit have grown after 4 years?

Problem 5. During the year ending April, 2002, the S&P 500 index depreciated by approximately 6%. Assuming that this trend were to continue, how much would a $3000 investment in an S&P index fund be worth in 3 years?

Problem 6. You want to buy a 15-year zero-coupon bond with a maturity value of $10,000 and a yield of 6.25% annually. How much will you pay?

Problem 7. When I was considering what to do with the $10,000 proceeds from my sale of technology stock, my broker suggested I invest half of it in municipal bonds, whose value was growing by 6% per year, and the other half in CDs, which were yielding 3% per year, compounded every 2 months. Assuming that these interest rates are sustained, how much will my investment be worth in 10 years?