Week in Review #9

Section 5.1: Compound Interest

- Simple interest
  - interest is computed on the original principal only
  - I=Prt
  - A = P(1+rt)
- Compound interest
  - interest is earned on the principal and on the interest
  - $A = P\left(1 + \frac{r}{m}\right)^{mt}$
- Effective interest rate
  - $r_{eff} = 100\left(1 + \frac{r}{m}\right)^{m} - 100$
  - calculator command: Eff(r,m)
- present value
- compound interest problems may be solved using the TVM Solver on the calculator.

1. Find the simple interest on a \$600 investment made for 2 years at a simple interest rate of 8%per year. What is the accumulated ammount?

2. How long will it take an invest ment to grow from \$500 to \$750 if the investment earns a simple interest rate of 8% per year?

3. Determine the annual simple interest rate at which \$1500 will grow to \$1580 in 7 months.

4. One bank, A, advertises a nominal rate of 7.15% per year compounded semi-annually. a second bank, B, advertises a nominal rate of 7% per year compounded daily. What are the effective yields for each bank? Which bank has the best interest rate?

5. $3000 is invested at a rate of 8% per year compounded quarterly. What is the balance in the account at the end of six years?

6. You put $2,000 into an account and 5 years later had $8,450.50. If the account earned interest compounded monthly, what was the interest rate?

7. You want to take a trip in 3 years that will cost $18,000. How much should you deposit now into an account that earns 8% per year compounded daily so you will have enough for the trip.

8. Bob deposits $5000 into an account that pays 5.96% per year, compounded monthly. How much money will Bob have at the end of 4 months? How much interest did Bob earn?

9. Three hundred dollars are invested at a simple interest rate of 7.5% per year. How much do you have at the end of 5 years?

10. What interest rate would you get if you inverst $600 and three years later you have $975 if the account is paid interest compounded quarterly?