

WS 11.1- Future Value

1. A chemist deposits \$300 in a savings account that pays 4% interest compounded annually and adds \$300 at the end of each year for 4 years. How much money does she have at the end of 5 years?
2. Grandparents of a 4th grader decided to start a college fund so that in 8 years their grandchild will have \$40,000 saved toward college tuition. What monthly payments must they make if they find a bank paying 8% interest?
3. A 55-yr old man would like to have \$100,000 in his account when he retires in 10 yrs. What monthly payments should he make to an account that pays 6% monthly?
4. A math teacher deposits \$1000 in a savings account at the end of each quarter for 10 yrs. How much money does she have at the end of 10 yrs if the account pays 8.25% compounded quarterly?
5. In 5 yrs, a company wants to buy a new computer system costing \$100,000. They establish a sinking fund that pays 6% compounded semiannually. To accumulate \$100,000 in 5 yrs, what is the payment every 6 months?
6. A manufacturer deposits \$1000 each month into an account that pays 5.5% compounded monthly. He plans to do this for 7 years, how much money will be in the account at the end of that time period?

WS 11.2- Present Value of an Annuity

1. What amount of money must be invested today at 6% compounded monthly so that payments of \$100 per month can be made from this fund for 5 years?
2. A television is purchased for \$100 down and \$30 a month for 12 months. If the finance charge is 15% compounded monthly, find the original price of the set.
3. What are the monthly payments to finance a \$12,000 car at 13% interest for 5 years? How much interest was paid? What is the total price of the car?
4. What is the highest priced price a person can afford if he is willing to pay monthly car payments of \$350 for the next 5 years with the interest rate at 12%?
5. You decide to purchase a house for \$450,000. Your parents give you the 20% down payment. Find the monthly house payments if you are able to get a 30-year loan at 5 ½% compounded monthly. How much interest was paid? What was the total cost of the house?
6. In order for you not to work while in college, a fund is set up to pay you \$500 a month for 4 years. How much should be deposited in the fund which is paying 6% compounded monthly to achieve this goal? How many months were you able to "live" off your interest?

WS 11.3- Compounding Problems

1. What is the value of a \$20,000 CD after 5 years at 6% compounded annually?
2. If \$2000 is invested at 6% compounded quarterly for 5 years, what will the investment be worth in 5 years?
3. Find the value of \$ 8000 invested for 6 years at 8% compounded monthly.
4. How much money should you deposit in a bank paying 6% compounded quarterly in order to have \$3000 in 5 years?
5. If \$1000 is invested for 20 yrs at 8% compounded continuously, what is the amount accumulated?
6. What is the effective rate for 8% compounded continuously? Compare this with the effective rate for 8% compounded quarterly?
7. Given an effective rate of 6.18% compounded continuously, what is the nominal rate?

WS 11.4- Effective Rate Problems

1. What is the effective annual rate for 8% compounded continuously? Compare this with the effective annual rate of 8% compounded quarterly.
2. Given an effective rate of 6.18% compounded continuously, what is the nominal rate?
3. Which provides a better yield, simple interest of 6.15% or 6 % compounded quarterly?