Compound Interest (Assignment 28)

For questions 1–3, write an exponential function that models each situation.

1. Your salary of $25,000 increases 7% each year.

2. A population of 310,000 increases by 15% each year.

3. You are charged 5% yearly interest on a $3,000 loan.

4. a) You make a salary of $45,000 per year in a job that has a history of increasing the salary by an average of 3% each year. Set up an equation that represents the relationship between your salary and the number of years from now.

b) How much will you be making in 9 years?

5. You deposit $1,600 in an account that pays 4% interest compounded yearly. Find the balance at the end of 7 years.

6. You deposit $2,000 in an account that compounds interest yearly. Find the balance after 10 years with an interest rate of 6%.

7. The cost of a movie ticket in a large city has increased exponentially over the years since 1953 when records were first kept. In 1953, the cost of a movie was $1.25. The cost grew exponentially by 3% each year.

a) Write a model of the function giving the cost C of a movie over t years.

b) Use your equation for part a to estimate the cost of a movie ticket in 1996.

For questions 8 and 9, write an exponential function that models each situation.

8. You are charged 4.8% interest compounded monthly on a $53,000 loan.

9. The bank is offering you 1.2% interest compounded semiannually if you open a savings account of $5,000.

10. Find the value of $1000 deposited for 8 years in an account paying 8% annual interest compounded semiannually.

11. Find the value of $1000 deposited for 10 years in an account paying 6% annual interest compounded monthly.

12. If, at the end of two years, a saving account has a balance of $1,172.60, and the interest rate is compounded monthly at 3.2%, then what was the original amount deposited two years ago?