Word Problem Day Ch7 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (7.1) In 1970, the population of Napa Valley, California, was about 350,000. From 1970 to 2000, the population grew at an average annual rate of about 3.45%. Write an exponential growth model giving the population of Napa Valley t years after 1970. About how many people lived in Napa Valley in 1995?

2. (7.1) You deposit $7500 in an account that pays 3.25% annual interest. Find the balance after 2 years if it is compounded monthly.

3. (7.1) The cost of going to the movie theater has increase from $6 to $10.50 in the last 7 years. What is the percent increase?

4. (7.2) A new motorcycle cost $35,000. The value of the motorcycle decreases by 18% each year. Write an exponential decay model giving the motorcycles annual value after t years. Estimate the value after 4 years.

5. (7.2)You buy a Yadier Molina baseball card for $50. If the card increases in value at a rate of 15% each year, how much was it initially worth 8 years ago.

6. (7.3) You deposit $4500 in an account that pays 5% annual interest compounded continuously. What is the balance after 3 years?

7. (7.4) Once a hurricane reaches land, the wind speed s (in knots) within the hurricane is related to the time t (in hours) the hurricane remains over land. For one particular hurricane, this relationship can be modeled by y = -57.1 log t + 121

1. Graph the model in your graphing calculator and make a sketch.
2. How fast are the wind speeds after the hurricane has been on land for 1 hour?
3. How long after the hurricane reaches land are the wind speeds about 80 knots?

8. (7.6) You deposit $500 in an account that pays 3.25% annual interest compounded monthly. How long does it take for the balance to quadruple?

9. (7.6) You deposit $700 in an account that pays 2.75% annual interest. How long does it take the balance to reach $2000 when it is compounded continuously?

10. (7.6) You invest $1000 into an account at 4% interest compounded continuously. How long would it take for your money to double?