NAME: _____ HW 9.3

DATE: _____ ALGEBRA

1. In the exponential function: $y = 250(1 + 0.2)^t$, identify the initial amount and the growth rate.

2. Write an exponential growth function to model the situation.
   A population of 422,000 increases by 12% each year.

3. If a person takes A milligrams of a drug at time 0, then $y = a(0.7)^t$ gives the concentration left in the bloodstream after t hours. If the initial dose is 125 mg, what is the concentration of the drug in the bloodstream after 3 hours?

4. A car bought for $13,000 depreciates at 12% per annum (year). What is its value after 7 years?

5. An Impressionist painting increases in value at an average rate of 9% per year. If the original cost of the painting to the Museum of Art was $1500, what was the value of the painting (to the nearest dollar) at the end of a 20-year holding period?

6. Alberto invested $5000 at 6% interest compounded annually. What will be the value of his investment after 8 years?

7. Mrs. Boyko has a trust fund from which she withdraws 5% each year. If the fund has a value of $50,000 this year, what will be the value of the fund after 10 years?

8. In 2005, the population of a city was 25,000. The population increased by 20% in each of the next three years. If this rate of increase continues, what will be the population of the city in 2012?

9. Hailey has begun a fitness program. The first week, she ran 1 mile every day. Each week, she increases the amount that she runs each day by 20%. In week 10, how many miles does she run each day? Give your answer to the nearest mile.

10. A man wants to purchase a new upright piano for his family. The piano costs $4500. He deposits $4000 in a savings account that pays a 3.6% annual interest compounded yearly. Will there be enough money in the account after 3 years? Justify your answer.