**Exponential Word Problems – Test Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**DUE MONDAY 11/2**

1. When I bought my car, it was worth $12,000. It depreciated in value 15% each year and now is only worth $4,200. How long have I had my car (to the nearest whole number of a year)?

2. I invest $14,000 in an account with 10% interest compounded continuously. How much will I have after 6 years?

3. I invest $5,600 in an account that has 4.3% interest compounded continuously. How many years will it take for my investment to reach $8000 (to the nearest whole number of a year)?

4. The populations of rabbits in a n area is modeled by the growth equation $P\left(t\right)=8e^{0.26t}$, where $P$ is thousands and $t$ is in years. How long will it take for the population to reach 25,000?

5. My car declines in value 20% every year. If it is worth $16,750 now, how much will it be worth 7.3 years from now?

6. How many hours will it take a culture of bacteria to increase from 20 to 2000? Use k = 0.164.

7. Computers depreciate in value 11% each year. If I just bought a computer for $3,125, how long will it be until it is worth $1,365?

8. A basket of groceries today costs $200. If the rate of inflation remains at 4% for the next few years, how much will the same grocery basket cost in 5 years?

9. In January 1990, there were 5.5 billion people living on this planet. The population has been growing at a rate of 1.9% per year. In which year will the population reach 9 billion?

10. Find the number of years required for $2000 investment to quadruple at a 9.5% interest rate compounded continuously.