***8.5/8.6 NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Exponential Growth and Decay Test***

Be sure to **read** the entire question. **Every** problem requires more than one answer.

Remember, these are story problems, so you need to **label** your answers appropriately.

Please show **all** work and **circle** your final answers for all parts of the question.

1. In 2004, the population of Circleville was 250,000. Then, each year for the next six years, the population increased by 5.5%. Write an exponential growth model to represent this situation. What was the population in 2008? (5 points)

2. The model **y = 34 (0.23)t** is given. Classify as exponential growth or decay. Identify the growth or decay factor and the percent of increase or decrease. What does the 34 represent? If t = 5, then what is y? (5 points)

3. In 2005, you bought a car for $20,000. It depreciates at a rate of 15% per year for 6 years. How much will the car be worth next year? Write a model and solve. (5 points)

4. A population of 20 rabbits is released into a wild-life region. The population triples for the next five years. What is the percent of increase each year? What is the population after five years? (5 points)