

Name: \_\_\_\_\_

1. Suppose you invest \$1000 at a 1.2% interest rate that is compounded yearly. How much will you have earned in one year? How about 2 and 5 years? Suppose you do not deposit or withdraw any money along the way.
2. Suppose you invest \$2500 at a 2.3% interest rate which is compounded Monthly. How much will you have earned after 5 years? What is the 5-year factor of growth and effective 5-year interest rate? What about the 1-year factor of growth and interest rate? What is the 1-day factor of growth and interest rate?

3. Suppose you start off with a population of 7.3 billion people which is growing continuously at a rate of 1.23%. How many people will there be in 10 years? 100 years? What is the doubling time? What is the 1-year factor of growth and 1-year rate of growth? What is the 5-year factor of growth and 5-year rate of growth? What is the 1-month factor of growth and 1-month rate of growth?

4. Suppose you start off with a population of 142 million people which is decaying at a continuous rate of 0.258% per year. How long will it be before the population reaches 100 million people? How many people will there be in 50 years? What is the effective 1-year factor of growth and 1-year rate of growth?

5. Iodine-131 is a radioactive material with a half-life of about 8 years. Supposing you start with a sample of 100 grams of Iodine-131, how many grams will be left in 100 years?

6. Traces of burned wood along with ancient stone tools in an archaeological dig in Chile were found to contain approximately 1.67% of the original amount of carbon-14. Noting that the half-life of carbon-14 is about 5600 years, approximately when was the tree cut and burned? Round to the nearest 100 years.