Name _____ Date _____

<u>Doubling Time and the Rule of 70</u>

The doubling time or Rule of 70 is a useful tool for calculating the time it will take for a population (or money) to double. The rule of 70 explains the time periods involved in exponential growth at a constant rate. To find the approximate doubling time of a quantity growing at a given annual percentage, such as
10%, divide 70 by the percentage growth rate. Remember, the Rule of 70 is an approximation, the actual rule is 69.3. You can use the rule of 70 to approximate.

1. Calculate the approximate doubling time for the $1000 investment with an annual percentage rate of 10% (show your work):

Here is an example of a similar AP multiple-choice question to calculate doubling time using the Rule of 70:

2. If the population of rabbits in an ecosystem grows at a rate of approximately 4 percent per year, the number of years required for the rabbit population to double is closest to
a. 4 years   b. 8 years   c. 12 years
d. 17 years   e. 25 years

Solution (show your work):

Exponential Growth

Review p. 155-156 in textbook & Do the Math. Look at the example.

Complete the "Your Turn": Now assume that the intrinsic rate of growth is 1.0 for rabbits.
Calculate the predicted size of the rabbit population after 1, 5, and 10 years. You will need
the e^x function on a calculator.

a) 1 year

b) 5 years

c) 10 years

d) Graph the data and draw the predicted exponential curve. Be sure to add labels/titles.