Math 29
In-class Problems on Exponential Growth and Decay

1. How long will it take money in the bank to double at 7 percent interest compounded continuously?

2. What rate of interest compounded annually is equivalent to 5 percent compounded continuously?

3. Rain water runs through a series of gutters, each containing a grate with a mesh which is finer than the previous one. Suppose each grate removes 10 percent of the debris in the water. How many grates does the water have to pass through until it contains no more than 10 percent of its original amount of debris?

4. It takes Carbon-14 5730 years for half of it to decay. If there are 5 grams of Carbon-14 present now, how much Carbon-14 was there $10,000$ years ago?

5. Though few Pomona students know about it, on Pitzer College there are two populations of rabbits which roam the campus freely. The light grey fuzzy ones and the dark brown ones with cute pink ears. The population of light grey rabbits doubles every 4.4 years, while the population of dark brown rabbits doubles every 2.5 years. Suppose that currently there are the same number of rabbits of each type. How long will it take until there are 7 dark brown bunnies for every 5 light grey bunnies?