

1. Supposed that \$10,000 is invested at an interest rate of 5.4% per year, compounded continuously.
- Express the amount of money that will be in the account as a function of t .
 - How much money will be in the account after 4 years?
 - How long does it take for the investment to double?

2. Complete the following table assuming that the investment is compounded continuously:

A_0	r	Doubling Time	Amount after 5 years
\$35,000	6.2%		
\$5000			\$7130.90
	8.4%		\$11,414.71
		11 years	\$17,539.32

3. A mummy discovered in the pyramid Khufu in Egypt has lost 46% of its carbon-14. The half-life of carbon-14 is 5730 years. How old is the mummy?

4. The 1957 Studebaker Golden Hawk has become a car of interest to those investing in classic cars. In 1967 a 10-year-old Golden Hawk sold for only \$800, and in 2006 the same car, in top condition, sold for \$27,000.

- Find an equation that represents the value of the car as a function of time, where $t=0$ represents 1967.
- How much was the car worth in 1992?
- When will the car be worth \$50,000?

5. On your next birthday, your parents are going to give you \$500 to invest. Is it better to invest your money in an account with a higher interest rate or in an account that compounds your interest more frequently? Justify your response. Does the length of your investment affect your answer?