

5.6: Applications and Modes; Growth and Decay

C1: In an art class, students were tested at the end of the course on a final exam. Then they were retested with an equivalent test at subsequent time intervals. Their scores after time x , in months, are given in the following table.

Time, x (in months)	Score, y
1	84.9%
2	84.6%
3	84.4%
4	84.2%
5	84.1%
6	83.9%

- Use a graphing calculator to fit a logarithmic function $y = a + b \ln x$ to the data.
- Use the function to predict test scores after 8, 10, 24, and 36 months.
- After how long will the test scores fall below 82%?

C2: Acceptance to the college of one's choice has become increasingly competitive. The table below lists the percent of college applicants who sent out 7 or more applications.

Year, x	Percent of College Applicants Who Sent Out 7 or More Applications, y
1967, 0	1.8%
1977, 10	4.0%
1987, 20	7.9%
1997, 30	10.8%
2007, 40	18.2%

- Create a scatter plot of the data. Let x = the number of years since 1967.
- Use a graphing calculator to fit linear, quadratic, and exponential functions to the data, where x is the number of years after 1967. Determine which function has the best fit.
- Graph all three functions found in part (b) with the scatter plot in part (a).
- Use the functions in part (b) to estimate the percent of college applicants who will send out 7 or more applications in 2012? Which function provides the most realistic prediction?