

Section 1.5 (cont.)

2) Data from 4 functions are shown in the table. One function is linear, one is exponential, one is quadratic, and one is cubic. Determine which function is which and use regression to find the appropriate model.

x	f(x)	g(x)	h(x)	k(x)
3	28.8	4.39	10.80	28.8
3.5	39.2	5.01	12.96	39.2
4	51.2	5.71	15.55	49.6
4.5	64.8	6.51	18.66	60.0
5	80.0	7.43	22.39	70.4

3) The table shows the number of people (in thousands) employed by McDonald's Corporation from 1987 through 1996. (Source: *Hoover's Company Profiles*, 1997)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Employees (thousands)	159	169	176	174	168	166	169	183	212	237

- Examine a scatter plot of the data and decide whether the data should be modeled by a quadratic or cubic equation? Find the model.
- What does the model estimate as the number of McDonald's employees in 1997?
- Discuss why you feel the model would or would not be a good estimator of the number of McDonald's employees in the year 2005.

4) The table shows the number of communities in a certain state that had no 911 emergency response system each quarter from the beginning of 1992 through the end of 1993.

Quarter	0	1	2	3	4	5	6	7	8
911 systems	3982	3935	3830	3565	3020	2167	1240	590	250

Which of the five types of models we have studied is most appropriate for this data set? Why?

Section 2.1

1) Find the average rate of change of y with respect to x on the graph of $y = 2x + 1$ from the point (2,5) to the point (10,21).

2) Find the average rate of change of y with respect to x on the graph of $y = x^2$ from the point (2,4) to the point (5, 25).

3) Rewrite the sentence to express how rapidly, on average, the quantity changed over the given interval.

The assessed value of my home has increased \$54,000 over the last 4 years.

4) Calculate the change and average rate of change of the interval specified. Write a sentence interpreting each description of change.

In 1991, Americans paid a total of 624.8 billion dollars of personal taxes. In 1994, a total of 731.4 billion dollars in personal taxes was paid.