

73. **Make a Decision** The table shows the amount  $A$  spent (in billions of dollars) on advertising in the United States from 1980 to 2004.  
(Data Source: *Universal McCann*)

Year	Amount, $A$
1980	53.6
1981	60.5
1982	66.7
1983	76.0
1984	88.0
1985	94.9
1986	102.4
1987	110.3
1988	118.8
1989	124.8
1990	130.0
1991	128.4
1992	133.8

Year	Amount, $A$
1993	141.0
1994	153.0
1995	162.9
1996	175.2
1997	187.5
1998	206.7
1999	222.3
2000	247.5
2001	231.3
2002	236.9
2003	245.5
2004	263.8

- Use the *regression* feature of a graphing utility to find a quadratic model for the data. Let  $t$  represent the year, with  $t = 0$  corresponding to 1980.
- Use a graphing utility to graph the model from part (a) and the original data in the same viewing window. How well does the model fit the data? Explain your reasoning.
- Estimating the slope of the graph when  $t = 0$ ,  $t = 15$ ,  $t = 20$ , and  $t = 24$ . Interpret your answers in the context of the problem.
- Use a graphing utility to graph the tangent lines to the model when  $t = 0$ ,  $t = 10$ ,  $t = 15$ ,  $t = 20$ , and  $t = 24$ .
- Compare the slopes given by the graphing utility with your estimates in part (c).