139. Make a Decision The table shows the amounts a_n (in billions of dollars) spent on research and development in the United States from 1980 to 2003. *(Data Source: U.S. National Science Foundation)*

Year	Amount, a_n
1980	63.2
1981	72.3
1982	80.8
1983	90.0
1984	102.3
1985	114.7
1986	120.3
1987	126.2
1988	133.9
1989	141.9
1990	152.0
1991	160.9
1992	165.3
1993	165.7
1994	169.2
1995	183.6
1996	197.3
1997	212.1
1998	226.3
1999	243.5
2000	264.6
2001	274.2
2002	276.4
2003	283.8

(a) Use the *regression* feature of a graphing utility to find an arithmetic sequence, a geometric sequence, and a quadratic sequence for the data. Let n represent the year, with $n = 0$ corresponding to 1980.

(b) Create a table that compares the actual data values with the values given by each sequence.

(c) Which sequence do you think best fits the data? Explain your reasoning.

(d) Use each sequence to predict the amount spent on research and development in 2008.

(e) Which sequence do you think is the best one to use to predict amounts spent on research and development in the future? Explain your reasoning.

(f) Use summation notation to represent the total amount spent on research and development from 1980 to 2003. Use the sequence you chose in part (c). Find the total amount spent.