Project: Housing Vacancies The table shows the number a_n (in thousands) of vacant houses in the United States from 1990 through 2011. *(Source: U.S. Census Bureau)*

Year	Vacant houses, a_n
1990	12,059
1991	12,023
1992	11,926
1993	11,894
1994	12,257
1995	12,669
1996	13,155
1997	13,419
1998	13,748
1999	14,116
2000	13,908
2001	14,470
2002	14,332
2003	15,274
2004	15,599
2005	15,694
2006	16,437
2007	17,652
2008	18,704
2009	18,815
2010	18,739
2011	18,758

(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 1990.

(b) Create a table that compares the actual data 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 number of vacant houses in 2016.

(e) Which sequence do you think is the best one to use to predict the number of vacant houses in the future? Explain your reasoning.

(f) Use summation notation to represent the total number of vacant houses from 1990 to 2011. Use the sequence you chose in part (c). Find the total number of vacant houses.