

**Project: Population** The table shows the populations (in thousands) of Delaware from 2000 through 2015. (Source: U.S. Census Bureau)

Year	Population
2000	786.4
2001	795.7
2002	806.2
2003	818.0
2004	830.8
2005	845.2
2006	859.3
2007	871.7
2008	883.9
2009	891.7
2010	899.8
2011	907.9
2012	917.1
2013	925.4
2014	936.0
2015	945.9

- (a) Use the *regression* feature of a graphing utility to find the  $n$ th term ( $a_n$ ) of an arithmetic sequence and the  $n$ th term ( $b_n$ ) of a geometric sequence that model the data. Let  $n$  represent the year, with  $n = 0$  corresponding to 2000.
- (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.
- (d) Use each sequence to predict the population in 2020.
- (e) Which sequence do you think is the better one to use to predict the population in the future? Explain.