Project: Earnings per Share The table shows the earnings per share y for Wal-Mart Stores, Inc. from 1995 through 2010. *(Source: Wal-Mart Stores, Inc.)*

Spreadsheet at LarsonPrecalculus.com

Year	Earnings per share, y
2001	1.50
2002	1.81
2003	2.03
2004	2.41
2005	2.63
2006	2.92
2007	3.16
2008	3.42
2009	3.66
2010	4.07
2011	4.45
2012	5.02
2013	5.11
2014	5.07
2015	4.60

(a) Use a graphing utility to plot the data. Let t represent the year, with $t = 1$ corresponding to 2001. Describe the trend in the data.

(b) Find the least squares regression parabola $y = at^2 + bt + c$ for the data by solving the system.

$$\begin{cases} 15c + 120b + 1240a = 51.86 \\ 120c + 1240b + 14{,}400a = 490.24 \\ 1240c + 14{,}400b + 178{,}312a = 5467.26 \end{cases}$$

(c) Use the graphing utility to graph the least squares regression parabola from part (b) and the original data in the same viewing window. How well does the model fit the data? Explain.

(d) Use the *regression* feature of the graphing utility to find a quadratic model for the data. How does the model given by the graphing utility compare with the model you found in part (b)?

(e) The National Association of Securities Dealers Automated Quotations (NASDAQ), a global electronic marketplace for buying and selling stocks, projected that the earnings per share for Wal-Mart in 2017 and 2018 would be \$4.14 and \$4.35, respectively. Compare NASDAQ's projections for 2017 and 2018 with the earnings per share predicted by the model from part (b). Do NASDAQ's estimates agree with the model?

(f) Do you think a different type of model would be a better fit for the data? If so, use the *regression* feature of a graphing utility to find another model for the data and predict the earnings per share for Wal-Mart in 2017 and 2018. How do these predictions compare with those determined by NASDAQ?