

**Project: Sales per Share** The table shows the sales per share  $S$  (in dollars) for Kohl's Corporation from 1999 through 2014.  
 (Source: Kohl's Corporation)



Year	Sales per share, $S$
1999	13.97
2000	18.52
2001	22.35
2002	27.04
2003	30.23
2004	34.08
2005	38.84
2006	48.43
2007	53.06
2008	53.73
2009	55.95
2010	63.20
2011	76.13
2012	86.84
2013	90.19
2014	94.64

Spreadsheet at LarsonPrecalculus.com

- (a) Use the *regression* feature of a graphing utility to find a linear model, a quadratic model, and an exponential model for the data. Let  $t$  represent the year, with  $t = 9$  corresponding to 1999.
- (b) Use the graphing utility to graph each model from part (a) with the original data.
- (c) Which model do you think best fits the data? Explain.
- (d) For each model, find the coefficient of determination,  $r^2$ , as determined by the graphing utility. Use the results to choose which model best fits the data. How does this model compare with the model you chose from part (c)? (The correlation coefficient,  $r$ , gives a measure of how well a model fits a data set. The closer the value of the coefficient of determination is to 1, the better the fit.)
- (e) Use the model that best represents the data to predict the sales per share for Kohl's Corporation in 2020.