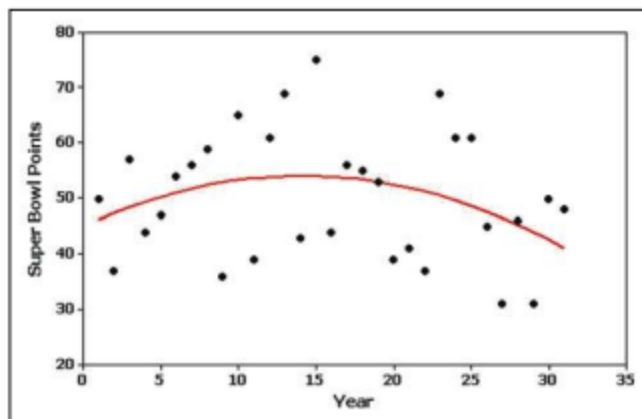


model a good model? What do the results suggest about predicting the number of points scored in a future Super Bowl game?

3. Interpreting R^2 In Exercise 2, the quadratic model results in $R^2 = 0.103$. Identify the percentage of the variation in Super Bowl points that can be explained by the quadratic model relating the variable of year and the variable of points scored. (*Hint:* See Example 2.) What does the result suggest about the usefulness of the quadratic model?

4. Interpreting a Graph The accompanying graph plots the numbers of points scored in each Super Bowl from 1980 (coded as year 1) to the last Super Bowl at the time of this writing. The graph also shows the graph of the quadratic equation that best fits the data. What feature of the graph justifies the value of $R^2 = 0.103$ for the quadratic model?



Finding the Best Model. In Exercises 5–16, construct a scatterplot and identify the mathematical model that best fits the given data. Assume that the model is to be used only for the scope of the given data, and consider only linear, quadratic, logarithmic, exponential, and power models.

5. Dropped Object The table lists the distance d (meters) above the ground for an object dropped in a vacuum from a height of 300 m. The time t (in sec) is the time after the object has been released.

t	1	2	3	4	5
d	295.1	280.5	256.1	222.0	178.1

6. Landscape Material The table lists the cost y (in dollars) of purchasing a volume of red landscaping mulch from the Red Barn Farm and Nursery in Dutchess County, New York. The mulch is sold by the “yard,” which is actually a cubic yard, and the variable x is the length (yd) of each side of a cubic yard.

x	1	1.5	2	2.5	3
Cost	35	118.13	280	546.88	945

7. CD Value The table lists the value y (in dollars) of \$100 deposited in a certificate of deposit at Bank of New York.

Year	1	2	3	4	5	20
Value	103	106.09	109.27	112.55	115.93	180.61

8. Sound Intensity The table lists intensities of sounds as multiples of a basic reference sound. A scale similar to the decibel scale is used to measure the sound intensity.

Sound Intensity	316	500	750	2000	5000
Scale Value	25.0	27.0	28.75	33.0	37.0