

Exercise 35

Use a graphing calculator with exponential regression capability to model the population of the world with the data from 1950 to 2010 in Table 1 on page 49. Use the model to estimate the population in 1993 and to predict the population in the year 2020.

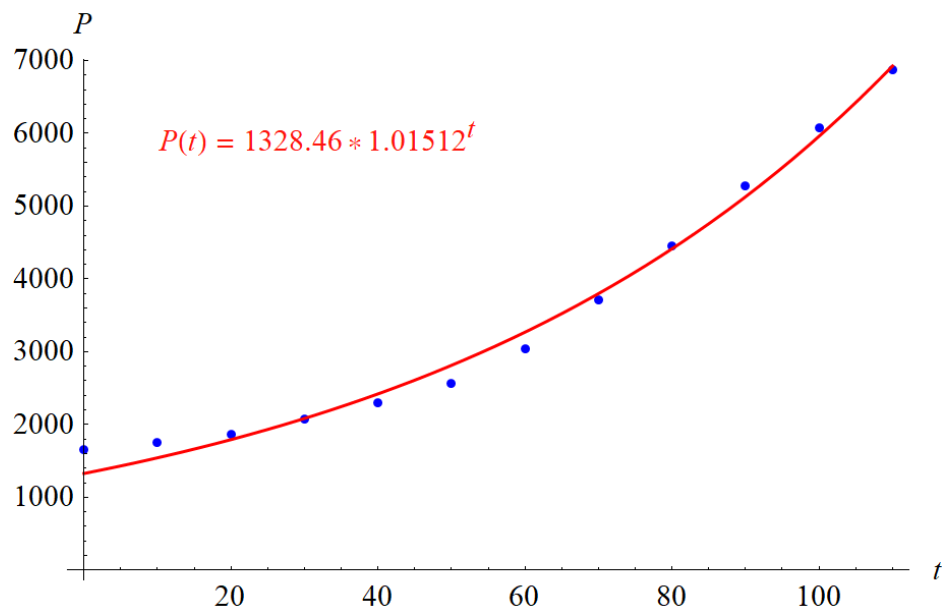
Solution

Table 1 on page 49 is shown here.

Table 1

t (years since 1900)	Population (millions)
0	1650
10	1750
20	1860
30	2070
40	2300
50	2560
60	3040
70	3710
80	4450
90	5280
100	6080
110	6870

A scatterplot of the given data is shown below along with an exponential function $P(t) = ab^t$ that fits the data. Use Mathematica's FindFit function to determine the ideal values for a and b .



1993 occurs 93 years after 1900, and 2020 occurs 120 years after 1900.

$$P(93) \approx 5366 \text{ (or 5.3 billion people)}$$

$$P(120) \approx 8047 \text{ (or 8.0 billion people)}$$