

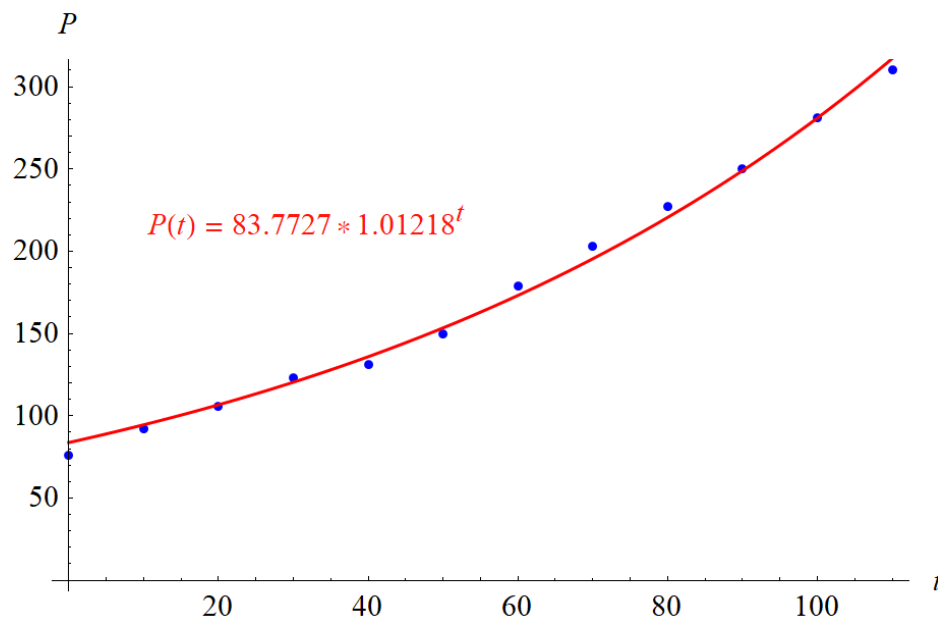
Exercise 36

The table gives the population of the United States, in millions, for the years 1900–2010. Use a graphing calculator with exponential regression capability to model the US population since 1900. Use the model to estimate the population in 1925 and to predict the population in the year 2020.

Year	Population	Year	Population
1900	76	1960	179
1910	92	1970	203
1920	106	1980	227
1930	123	1990	250
1940	131	2000	281
1950	150	2010	310

Solution

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 .



1925 occurs 25 years after 1900, and 2020 occurs 120 years after 1900.

$$P(25) \approx 113 \text{ (or 113 million people)}$$

$$P(120) \approx 358 \text{ (or 358 million people)}$$