

Exercise 45

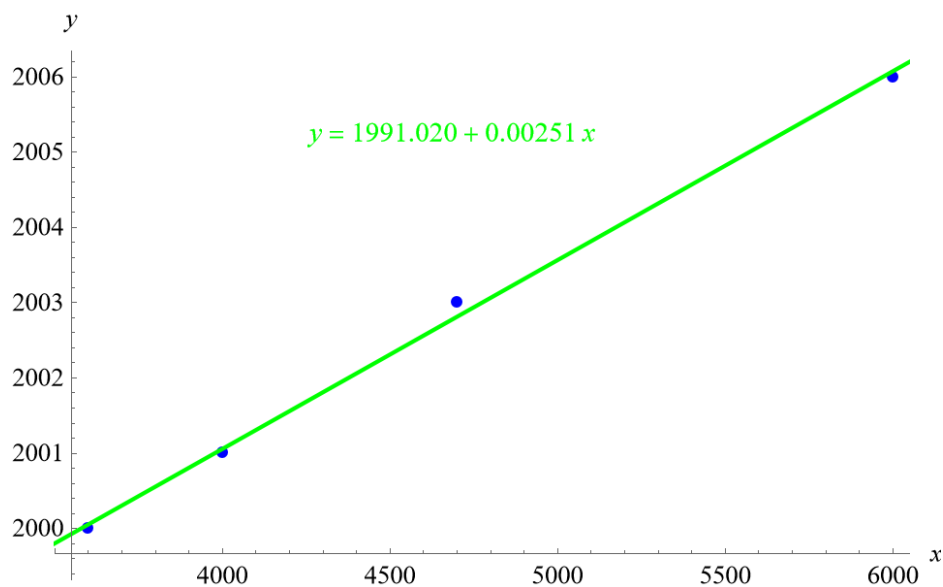
For the following exercises, consider this scenario: The population of a city increased steadily over a ten-year span. The following ordered pairs show the population and the year over the ten-year span (population, year) for specific recorded years:

$$(3,600, 2000); (4,000, 2001); (4,700, 2003); (6,000, 2006)$$

According to the model, what is the population in 2014?

Solution

Plot the following points: (3600, 2000), (4000, 2001), (4700, 2003), and (6000, 2006).



Mathematica's FindFit function gives

$$y = 1991.020 + 0.00251x$$

for the line of best fit. To find the population at the start of 2014, set $y = 2014$ and solve the equation for x .

$$2014 = 1991.020 + 0.00251x$$

$$22.98 = 0.00251x$$

$$x = \frac{22.98}{0.00251} \approx 9155.38$$

The population at the start of 2014 is about 9,155.

This answer is in disagreement with the one at the back of the book.