## Exercise 37

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

$$(2500, 2000), (2650, 2001), (3000, 2003), (3500, 2006), (4200, 2010)$$

Use linear regression to determine a function y, where the year depends on the population. Round to three decimal places of accuracy.

Solution

Plot the following points on a graph: $(46, 1600)$, $(48, 1550)$, $(50, 1505)$, $(52, 1540)$, and $(54, 1495)$.
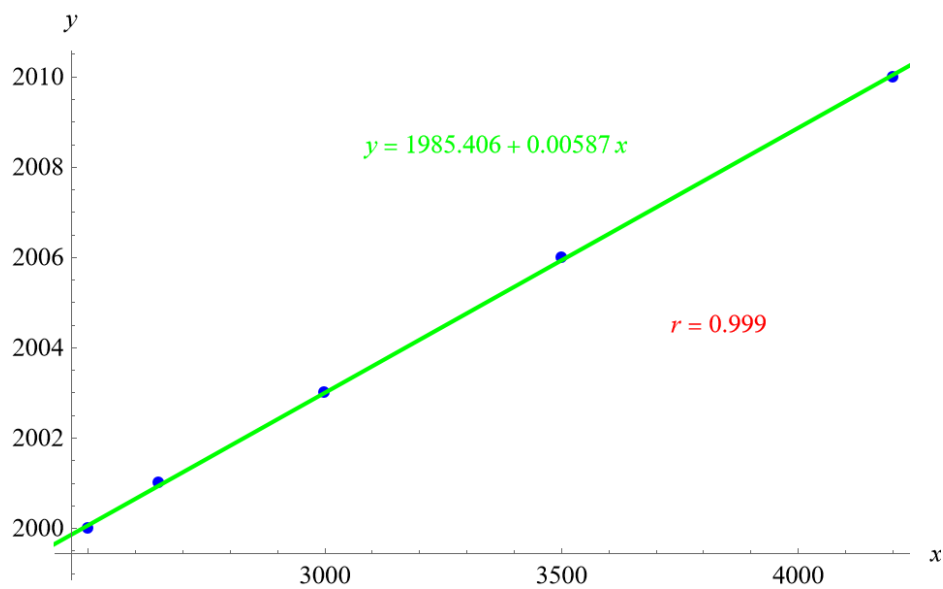
Mathematica's FindFit function gives

$$y = 1985.406 + 0.00587x,$$

and Mathematica's Correlation function gives $r = 0.999$.