

Exercise 41

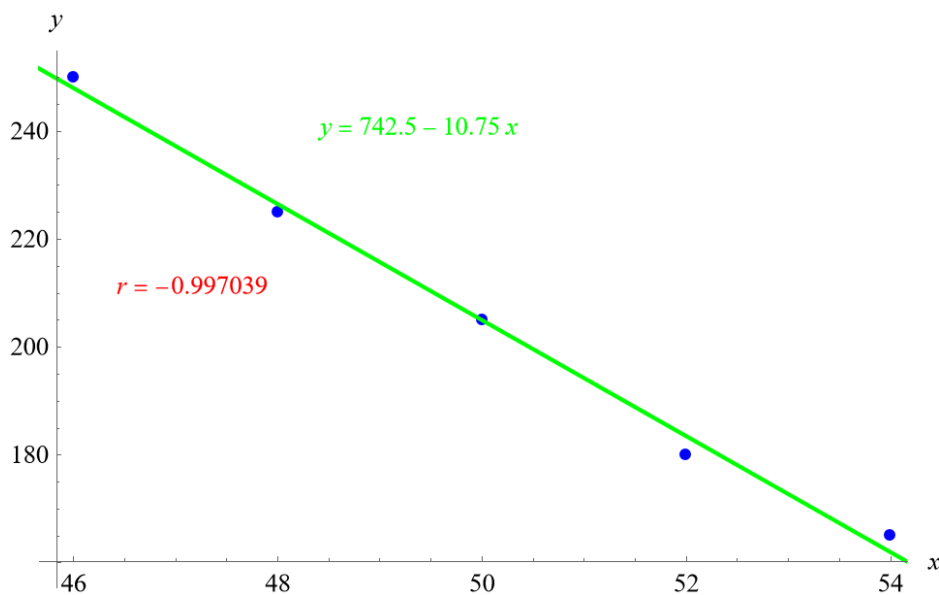
For the following exercises, consider this scenario: The profit of a company decreased steadily over a ten-year span. The following ordered pairs show dollars and the number of units sold in hundreds and the profit in thousands of over the ten-year span (number of units sold, profit) for specific recorded years:

$$(46, 250), (48, 225), (50, 205), (52, 180), (54, 165).$$

Use linear regression to determine a function y , where the profit in thousands of dollars depends on the number of units sold in hundreds.

Solution

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



Mathematica's FindFit function gives

$$y = 742.5 - 10.75x,$$

and Mathematica's Correlation function gives $r = -0.997039$.