Exercise 36

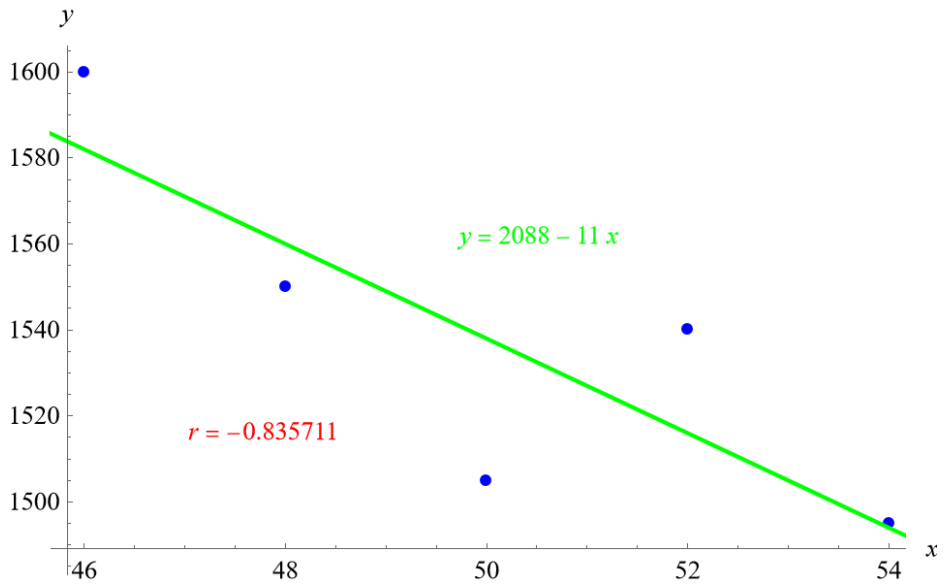
For the following exercises, consider this scenario: The profit of a company decreased steadily over a ten-year span. The following ordered pairs shows dollars and the number of units sold in hundreds and the profit in thousands of over the ten-year span, (number of units sold, profit) for specific recorded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

$$(46, 1, 600), (48, 1, 550), (50, 1, 505), (52, 1, 540), (54, 1, 495).$$

Find to the nearest tenth and interpret the y-intercept.

Solution

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



Mathematica's FindFit function gives

$$y = 2088 - 11x,$$

and Mathematica's Correlation function gives $r = -0.835711$. Determine the y-intercept by setting $x = 0$.

$$y = 2088 - 11(0) = 2088.0$$

Therefore, the y-intercept is about $(0, 2088.0)$, and it means the company will have a profit of \$2,088,000 if zero units are sold.