For Example 1, we want to check if this data can be modeled by a linear function.

Notice that the x-values increase by 2 each time. This means we just have to check if the y-values increase by a constant amount to see if the data are linear.

The changes in the y-values are plus 3, plus 4, plus 4, plus 4, plus 5, and plus 4. This is very close to linear, but not exactly linear. We will be able to find a close-enough model in the next section.

Example 2 has the same instructions.

The x-values don’t increase by the same amount in this example. That means we will have to calculate the average rate of change between each pair of x-values. The average rate of change between each column is 0.004. This means that the function is linear because the average rate of change is constant.

The third example asks us to find the linear model for the data from Example 2.

We already did most of the hard work by calculating the average rate of change for the linear function. Filling in the average rate of change into the general formula for a linear function gives us y equals 0.004 x plus b. The last part for this problem is to calculate b.

Substitute the values from one column for x and y into the last equation. We’ll pick the first column. The equation we need to solve is 12 = 0.004 times 100 plus b. The solution is b equals 11.6.

Substitute 11.6 for b in the first equation. The linear function that models this data is y equals 0.004 x plus 11.6.