**Using the AutoSum icon**

Because calculating totals is a popular function to perform with spreadsheets, Excel has created an easy-to-use **AutoSum** icon for the process. The icon (shown in Figure 1) is in the Standard toolbar, and it is the only icon with the Greek letter **Σ**. AutoSum works on consecutive cells of data, or a range, entered into a single column or row.

Graphical user interface, application

Description automatically generated

Figure 1. The AutoSum icon.

To use the icon to calculate the sum of numbers entered into a range,

1. Click on the empty cell that follows the last cell of data in that column.
2. Click on the **AutoSum** icon.
3. Press Enter.

For example, to calculate the total number of cats that Dr. Smith treated over the entire year, click on the cell **B14**, and then follow steps 2 and 3. (Step 2 is illustrated in Figure 2.) Excel generates the sum of 2558 and enters it into **B14**.

Graphical user interface, table, Excel

Description automatically generated

Figure 2. The **AutoSum** icon automatically calculates the sum of the nearest range of cells.

To use the icon to calculate the sum of numbers entered into a row of cells, first click on the empty cell adjacent to the last cell of data in that row, and then follow steps 2 and 3 from the instructions above.

*Note:* This technique is only useful when the data that needs to be summed is entered into consecutive cells. If there is a gap or blank in the data, the AutoSum icon will only calculate the total of the range of cells after the gap or blank.

**Entering in a Summation Function Manually**

Excel gives you the option of manually entering in functions that apply user-defined processing to data in the spreadsheet. To manually enter a summation function that calculates the total of data entered in adjacent cells in a column:

1. Click on the cell where you want the sum to appear.
2. Type =Sum(aN1:aN2) where a is the column or row in which the range appears, N1 is the first cell in the range, and N2 is the last cell in the range.
3. Press Enter.

For example, to calculate the total number of animals that Dr. Smith saw in the month of January:

1. Click in cell **F2**.
2. Type =sum(B2:E2)as shown in Figure 3.
3. Press Enter.

Excel calculates the sum as 389 and enters it into cell **F2**.

Table

Description automatically generated

Figure 3. When manually entering the sum function, Excel draws a temporary box around the range of cells specified.

This technique, unlike using the **AutoSum** icon, allows you to calculate the sum of data in multiple ranges. The Sum function can work on a set of ranges, and the ranges are specified in the same format but are comma-separated. For instance, if you wanted to calculate the total number of snakes treated during the entire year, you have two options:

1. You could enter the summation function as =Sum(E2:E13). Excel will properly calculate the total by treating July's snake count as a zero.

2. You could enter the summation function as =Sum(E2:E7, E9:E13) (shown in Figure 4), which calculates the sum of two ranges of cells and entirely omits July’s snake count.

Graphical user interface, application, table, Excel

Description automatically generated

Figure 4. To calculate the sum of 2 or more ranges of cells, use a comma to separate the cell ranges that are passed to the Sum function.

Using Visual Basic to calculate sums

If you know Visual Basic, the programming language, you can create custom functions, or User Defined functions, in Excel. These custom functions can be used in the same way as built-in functions such as the Sum function are used, and they can have functionality that is specific and unique to your needs. To create a custom function:

1. In Excel, press Alt+F11.
2. Select **Module** from the Insert menu.
3. Type Visual Basic code into the module screen.
4. Press Alt+Q to save the function.

For example, to specify a function called VeterinarySum that calculates the sum of a consecutive range of cells, follow the steps above and enter the following Visual Basic code for step 3:

Function VeterinarySum(Rcells As Range)

Dim i As Integer

Dim Rcell As Range

For Each Rcell In Rcells

i = i + Rcell

Next Rcell

VeterinarySum = i

End Function

To use a User Defined Visual Basic function:

1. In Excel, click in the cell where you want to place the results of your function.
2. Click the **fx** icon.
3. In the Insert Function popup window, select **User Defined** in the dropdown box next to the text Or select a category.
4. Select your user defined function from the menu below the dropdown box.
5. Click **OK**.
6. Specify the parameters for the function, if there are any.
7. Click **OK**.

For example, to use the VeterinarySum function to calculate the total number of dogs treated over the entire year:

1. Click in cell **C14**.
2. Follow steps 2 and 3 from above. Step 3 is shown below in Figure 6.
3. Select VeterinarySum from the drop down box.
4. Click **OK**.
5. Manually enter C2:C13 in the Rcells text box. This step is shown in Figure 7.
6. Click **OK**.

Excel calculates the sum of 1819 and enters it into cell **C14**.