What Is a Function?

When most people begin using Excel, they quickly learn how to create formulas such as:

```
=A1+A2
```

A **function** takes that idea one step further. Think of a function as a **built-in formula** or a miniature calculator that's already been written for you. Instead of creating a long formula from scratch, you simply tell Excel which function you want to use and which cells contain the information.

For example, instead of writing:

```
=A1+A2+A3+A4+A5+A6+A7+A8+A9+A10
```

you simply enter:

```
=SUM(A1:A10)
```

Excel does all the work. Functions save time, reduce typing, and greatly reduce the chance of making mistakes.

You Don't Need to Learn Hundreds of Functions

Microsoft Excel contains more than 500 built-in functions. At first, that number sounds overwhelming. Fortunately, most Excel users rely on only a handful of them. In fact, if you become comfortable with the functions described in this article, you'll be able to build and analyze the vast majority of personal and business spreadsheets you'll ever create.

Every function begins with an equals sign (=), followed by the function name and the cell references enclosed in parentheses. Once you understand that simple pattern, learning additional functions becomes much easier.

SUM()

If Excel has a favorite function, this is it.

SUM() automatically adds a group of numbers. The colon between two cell addresses tells Excel to include every cell in the range.

Instead of writing a long addition formula, simply enter:

```
=SUM(A1:A10)
```

Excel instantly totals every value from A1 through A10.

Where to find it: Home → Editing → AutoSum (Σ) or **Formulas → AutoSum**.

AVERAGE()

Need the average test score? Average monthly expense? Average sales? The **AVERAGE()** function calculates the arithmetic mean while automatically ignoring blank cells.

Example:

```
=AVERAGE(B2:B13)
```

Where to find it: Home → Editing → AutoSum ▼ → Average.

COUNT()

Sometimes you don't want to total numbers—you simply want to know how many entries exist.

```
=COUNT(C1:C50)
```

COUNT() counts cells containing numbers. If you also want to count text entries, use **COUNTA()** instead.

Where to find it: Formulas → More Functions → Statistical.

MAX() and MIN()

Need to know the highest or lowest value in a worksheet? Excel provides two simple functions.

Maximum:

```
=MAX(D2:D100)
```

Minimum:

```
=MIN(D2:D100)
```

These functions are perfect for finding the highest grades, lowest temperatures, largest invoices, or smallest expenses.

Where to find it: Home → Editing → AutoSum ▼.

IF()

The **IF()** function is where spreadsheets begin to seem almost intelligent. It tells Excel to make a simple decision based on a condition that you specify.

Example:

```
=IF(B2>=70,"Pass","Fail")
```

If the value in B2 is 70 or higher, Excel displays **Pass**. Otherwise, it displays **Fail**. You'll encounter IF() in grading systems, budgets, inventory worksheets, and countless other applications.

Where to find it: Formulas → Logical → IF.

TODAY() and NOW()

Sometimes you need the current date or time without typing it manually.

`=TODAY()` displays today's date.

`=NOW()` displays both the current date and the current time.

These functions update automatically whenever the workbook recalculates, making them ideal for invoices, reports, and timesheets.

Where to find them: Formulas → Date & Time.

CONCAT()

Need to combine text from several cells into one? **CONCAT()** does exactly that.

Suppose cell A2 contains **John** and B2 contains **Smith**.

```
=CONCAT(A2," ",B2)
```

returns:

John Smith

This function is particularly useful when creating mailing lists, labels, and reports.

Where to find it: Formulas → Text.

The Formula Wizard

Fortunately, you don't have to memorize function names or syntax. Clicking the **fx** button next to the Formula Bar opens Excel's **Insert Function** dialog box, which guides you through building a formula one step at a time. Even experienced Excel users rely on it when working with unfamiliar functions.

Where to find it: Click the **fx** button beside the Formula Bar or choose **Formulas → Insert Function**.

Curt's Quick Tip

If you're just beginning with Excel, don't try to learn hundreds of functions. Start with **SUM(), AVERAGE(), COUNT(), MAX(), and MIN()**. Those five functions alone solve the overwhelming majority of everyday spreadsheet problems.

Once you're comfortable with those, add **IF(), TODAY(), ROUND(),** and **CONCAT()** to your toolbox. Before long, you'll find yourself writing formulas that once seemed far beyond your abilities.

Excel's Real Power

Many people think Excel is about arithmetic. It isn't. Excel is about answering questions quickly and accurately.

How much did we spend? How many customers do we have? What's the average? Which sale was the largest? Did the student pass? What's today's date?

Functions answer those questions in a fraction of a second. That's why they're among the most valuable features in Microsoft Excel—and why learning just a handful of them will dramatically increase what you can accomplish with a spreadsheet.