

Text Functions

Excel includes functions for textual strings to reformat, separate, combine, and rewrite the text. These functions can be combined together to do advanced actions when working with textual strings.

In this chapter, we will reference data in **Figure 32.1** that includes a City, State, Zip Code text string, and Population and Rank data. However, we only need the former text string.

Practice Spreadsheet

Use this [workbook](#) for the chapter.

City, State, Zip Code	Population	Rank
Birmingham, Alabama 35203	231,483	79
Huntsville, Alabama 35813	166,313	134
Mobile, Alabama 36601	191,544	112
Montgomery, Alabama 36119	200,127	97
Anchorage, Alaska 99599	275,043	68
Chandler, Arizona 85225	234,939	75
Gilbert, Arizona 85296	173,989	127
Glendale, Arizona 85302	239,435	73
Mesa, Arizona 85201	442,780	41
Peoria, Arizona 85381	138,200	169
Phoenix, Arizona 85026	1,461,575	6

Figure 32.1

For ease of reference, it is recommended to freeze our top row(s) containing headers and the left column(s) containing the City, State, Zip Code information. We can do this by selecting the cell below the header row and right of the aforementioned column, then going to the **View** tab of the ribbon toolbar, and selecting **Freeze Panes** and **Freeze Panes** again.

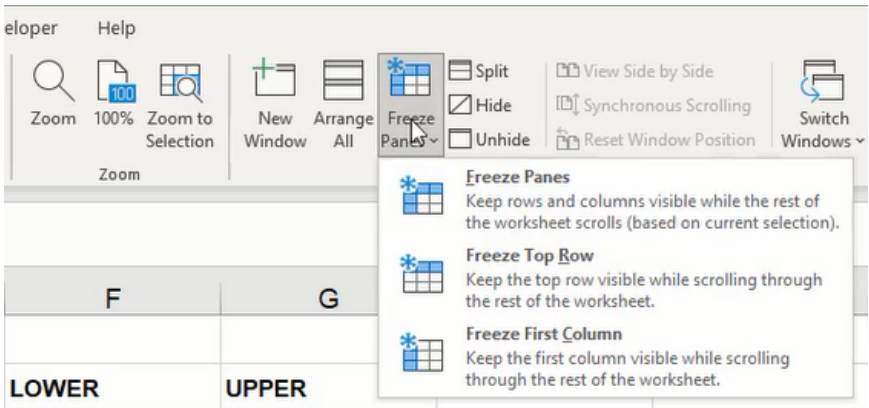


Figure 32.2

Lower

The Lower function is used to edit a text string to have all lowercase letters. In this example, we will use it to lowercase all letters in the city, state, and zip code information cell.

1. Type **=LOWER** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data.
3. Type a right parenthesis () to close the formula.
4. Press **Enter** to complete the function. (See **Figure 32.3**)



Figure 32.3

Upper

The Upper function is used to edit a text string to have all uppercase letters. We can use it to uppercase all letters in the city, state, and zip code information cell.

1. Type **=UPPER** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data.
3. Type a right parenthesis () to close the formula.
4. Press **Enter** to complete the function. (See **Figure 32.4**)

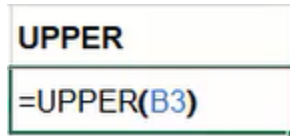


Figure 32.4

Proper

The Proper function is used to edit a text string to uppercase the first letter of each word. Our original reference data already has words formatted in this manner, but we can use one of the previously completed Lower or Upper function cells for reference.

1. Type **=PROPER** and a left parenthesis (() to start the function.
2. Select one of the previous function cells containing all lower or upper case text.
3. Type a right parenthesis () to close the formula.
4. Press **Enter** to complete the function. (See **Figure 32.5**)



Figure 32.5

Left

The Left function can be used to pull and display a designated number of characters beginning from the left of a text string.

1. Type **=LEFT** and a left parenthesis (**(**) to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (**,**).
3. Type a preferred number of characters to pull from the selected cell.
 - a. In this example, we'll pull three characters from the text string of the selected cell.
4. Type a right parenthesis (**)** to close the formula.
5. Press **Enter** to complete the function. (See **Figure 32.6**)

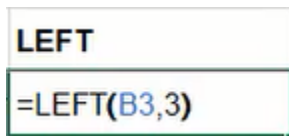


Figure 32.6

Right

Identical to the Left function, the Right function can be used to pull and display a designated number of textual characters beginning from the right of a text string. For this example, we'll pull five characters to copy the zip code at the end of the text string.

1. Type **=RIGHT** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type a preferred number of characters to pull from the selected cell.
 - a. In this example, we'll pull five characters from the text string of the selected cell.
4. Type a right parenthesis ()) to close the formula.
5. Press **Enter** to complete the function. (See **Figure 32.7**)



Figure 32.7

Length

The Length function counts the number of characters in a cell's text string.

1. Type **=LEN** and a left parenthesis (() to start the function.
2. Select the preferred cell to evaluate the number of characters it contains.
3. Type a right parenthesis ()) to close the formula.
4. Press **Enter** to complete the function. (See **Figure 32.8**)

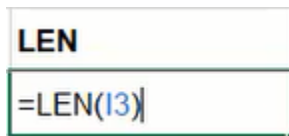


Figure 32.8

Trim

The Trim function removes any extra spaces found within the cell's text string. The data for city, state, and zip code includes two spaces between state and zip code information. We can use Trim to remove the second space.

1. Type **=TRIM** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data.
3. Type a right parenthesis () to close the formula.
4. Press **Enter** to complete the function. (See **Figure 32.9**)

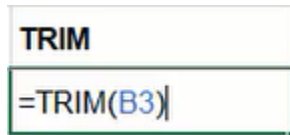


Figure 32.9

Ampersand

An ampersand symbol instructs Excel to combine two references in an argument.

1. Type an equals sign (=).
2. Select the first cell to be combined and type an ampersand (&).
3. Type " " (with a space between the quotation marks).
4. Type an ampersand (&) and select the second cell to be combined.
5. Press **Enter** to complete the formula. (See **Figure 32.10**)

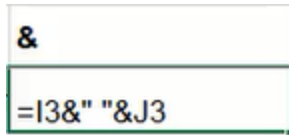


Figure 32.10

Concatenate

Similar in function to the ampersand, the CONCAT (Concatenate) function combines multiple cell references into one cell.

1. Type **=CONCAT** and a left parenthesis (() to start the function.
2. Select the first cell to be combined and type a comma (,).
3. Select a second cell to be combined.
 - a. Additional cells may be combined by typing another comma and selecting the next cell.
4. Type a right parenthesis ()) to close the formula.
5. Press **Enter** to complete the function. (See **Figure 32.11**)

Note: Like the previous function example, you may need to include a space between quotation marks to separate the selected items. For example, the **Figure 32.11** formula would look like the following:
=CONCAT(M3," ,K3," ,J3)

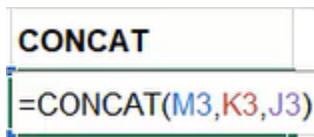


Figure 32.11

Value

The Value function converts numbers used in a textual string format to number format. In the case of the zip code produced in the earlier Right function section, we'll use Value combined with Right to convert the zip code into a numerical format whereby it will be right-aligned in the cell.

1. Type **=VALUE** and a left parenthesis (() to start the function.
2. Type **RIGHT** and a second left parenthesis (().
3. Select the previous Right function cell containing the zip code data.
4. Type two right parenthesis ()) to close both formulas.
5. Press **Enter** to complete the function. (See **Figure 32.12**)



Figure 32.12

Find

The Find function is used to locate the first position of an indicated character in a referenced textual string.

Note: This function is case-sensitive.

1. Type **=FIND** and a left parenthesis (() to start the function.
2. Type **","** and a comma (,).
3. Select the cell containing the City, State, Zip Code data.
4. Type a right parenthesis ()) to close the formula.
5. Press **Enter** to complete the function. (See **Figure 32.13**)

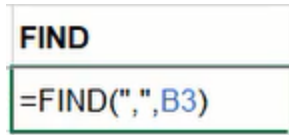


Figure 32.13

Search

Identical to the Find function, the Search function will locate the first position of an indicated character in a text string.

Note: This function is not case-sensitive.

1. Type **=SEARCH** and a left parenthesis (() to start the function.
2. Type **"a"** and a comma (,).
3. Select the cell containing the City, State, Zip Code data.
4. Type a right parenthesis ()) to close the formula.
5. Press **Enter** to complete the function. (See **Figure 32.14**)

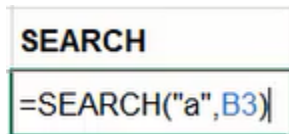


Figure 32.14

Replace

The Replace function is capable of rewriting a designated portion of the referenced cell's text. In this example, we'll reference the city, state, and zip code cell, indicate a starting point, determine the number of characters from that point to be replaced, and insert a new string.

1. Type **=REPLACE** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type **1** to indicate the beginning of the text string.
4. Type a comma (,).
5. Type **10** or another number to indicate the number of characters to replace.
6. Type the new text enclosed in double quotation marks.
 - a. In this example, we will use **"Example"** for the new text.
7. Type a right parenthesis () to close the formula.
8. Press **Enter** to complete the function. (See **Figure 32.15**)



```
=REPLACE(B3,1,10,"Example")
```

Figure 32.15

Substitute

Substitute works similarly to the Replace function by searching for a designated character or text to be substituted and inserting the new text.

1. Type **=SUBSTITUTE** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type **"a"** and a comma (,).
4. Type **"_"** to indicate the new character.
5. Type a right parenthesis () to close the formula.
6. Press **Enter** to complete the function. (See **Figure 32.16**)




```
=SUBSTITUTE(B4,"a","_")
```

Figure 32.16

Middle

The Middle function works like the Left and Right functions by beginning at a specified position in a text string and pulling a determined number of characters.

1. Type **=MID** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type the preferred number of characters to indicate the start point and a comma (,).
4. Type the preferred number of characters to pull from the selected cell.
5. Type a right parenthesis ()) to close the formula.
6. Press **Enter** to complete the function. (See **Figure 32.17**)



```
=MID(B3,10,10)
```

Figure 32.17

Now, we want to extract individual data from the City, State, Zip Code column. We will start by finding the city using the **=LEFT** function, then the state using the **=MID** function, and finally, the zip code using the **=RIGHT** function.

Combining Functions

The City column will be our first step. In this column, we'll be using the **=LEFT** function. Use the following steps to extrapolate the city from the City, State, Zip Code column:

1. Type **=LEFT** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type **FIND** and a second left parenthesis (().
4. Type ", " and a comma (,).
5. Select the same cell containing City, State, Zip Code data.
6. Type a right parenthesis ()) to close the FIND formula.
7. Type **-1** or another number to subtract extra characters as needed.
8. Type a right parenthesis ()) to close the LEFT formula.
9. Press **Enter** to complete the function. (See **Figure 32.18**)

A screenshot of an Excel formula bar. The formula bar is a light gray rectangular box with a thin border. Inside the box, the text "=LEFT(B3,FIND(",",B3)-1)" is displayed. The text is in a standard sans-serif font. The characters "(", ",", and ")" are highlighted in a light blue color, while the other characters are in a dark gray color.

Figure 32.18

The State column is a little trickier. In this column, we'll be using the **=MID** function. Use the following steps to extrapolate the state from the City, State, Zip Code column:

1. Type **=MID** and a left parenthesis (() to start the function.
2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. Type **LEN** and a second left parenthesis (().
4. Select the previous cell containing only the city name.
5. Type a right parenthesis ()) to close the LEN formula.
6. Type **+3** or another number to add extra characters as needed.


7. Type a comma (,).
8. Type **FIND** and a left parenthesis (().
9. Type " " (with two spaces between the quotation marks) and a comma (,).
10. Select the same cell containing City, State, Zip Code data.
11. Type a right parenthesis ()) to close the FIND formula.
12. Type **-LEN** and a left parenthesis (().
13. Select the previous cell containing only the city name.
14. Type a right parenthesis ()) to close the LEN function.
15. Type **-3** or another number to subtract extra characters as needed.
16. Type a right parenthesis ()) to close the MID formula.
17. Press **Enter** to complete the function. (See **Figure 32.19**)



The image shows a screenshot of an Excel formula bar. The formula entered is `=MID(B3,LEN(V3)+3,FIND(" ",B3)-LEN(V3)-3)`. The text is color-coded: B3 is blue, V3 is red, and the rest is black. A vertical cursor is visible at the end of the formula.

Figure 32.19

If you ever want to make sure you have those extra spaces removed, you can always wrap the entire formula in a trim function, which will remove the extra spaces for you. (See **Figure 32.20**)



The image shows a screenshot of an Excel formula bar. The formula entered is `=trim(MID(B3,LEN(V3)+3,FIND(" ",B3)-LEN(V3)-3))`. The text is color-coded: B3 is blue, V3 is red, and the rest is black. A vertical cursor is visible at the end of the formula.

Figure 32.20

The Zip Code will be the most straightforward step. In this column, we'll be using the **=RIGHT** function. Use the following steps to extrapolate the zip code from the City, State, Zip Code column:

1. Type **=RIGHT** and a left parenthesis (() to start the function.

2. Select the cell containing the City, State, Zip Code data and type a comma (,).
3. We only want the five characters from the right of the cell, so type the number 5.
4. Embed the =RIGHT formula in a value by typing **value(** between the equal sign (=) and **RIGHT**.
5. Add a left parenthesis (() after **value** to embed the function.
6. Close the formula with a right parenthesis ()) at the end. See **Figure 32.21** for a completed formula.



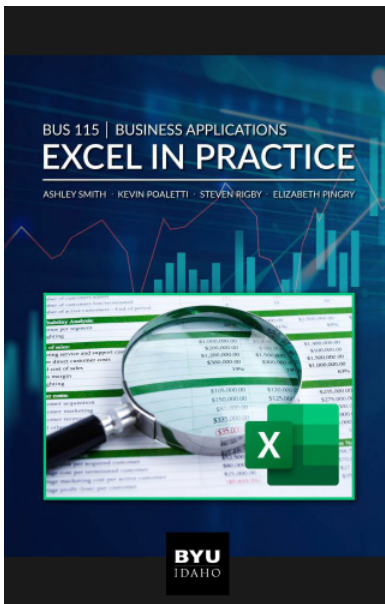
The image shows a rectangular box representing an Excel cell. Inside the box, the text "=VALUE(RIGHT(B3,5))" is displayed in a light blue font. The box has a thin grey border.

Figure 32.21

Now that you have the City, State, and Zip Code in separate columns, select all three input cells and click and drag down to automatically update the columns. It will even account for spaces between words, like *Little Rock*.

These text functions are invaluable when manipulating data; take the time to learn them to manipulate text quickly and accurately.

Supplemental Resource



Smith, A., Poaletti, Kevin, Rigby, S., & Pingry, E. (n.d.).
BUS 115 - Business Applications: Excel in Practice. BYU-I
Books. https://books.byui.edu/bus_115_business_app