SBCUSD – IT Training Program

MS Excel II
Fill Downs, Sorting, Functions, and More

Revised – 4/16/2019
Excel II – Fill Downs, Sorting, Functions, and More

TABLE OF CONTENTS

Number Formats ........................................................................................................................................................4
Auto Fill and Flash Fill .............................................................................................................................................5
  Simple Repeat.........................................................................................................................................................5
  Fill Down Common Series .......................................................................................................................................5
  Fill Down Custom Series .........................................................................................................................................5
  Flash Fill Series....................................................................................................................................................5
Sorting ........................................................................................................................................................................7
  Basic Sorting – Single Column ................................................................................................................................7
  Sort Multiple Columns ............................................................................................................................................7
  Sort Custom Order ..................................................................................................................................................7
Filtering .......................................................................................................................................................................8
  Filtering by Value ....................................................................................................................................................8
  Multiple Filters .......................................................................................................................................................8
Conditional Filtering ................................................................................................................................................9
Basic Functions and Formula Development ......................................................................................................... 10
  Formula Basics ..................................................................................................................................................... 10
  Formula Syntax .................................................................................................................................................... 10
  Referencing Cell Ranges in Formulas .................................................................................................................. 10
Common Functions .................................................................................................................................................. 11
  Sum ...................................................................................................................................................................... 11
  Average .............................................................................................................................................................. 11
  Min .................................................................................................................................................................... 11
  Max .................................................................................................................................................................... 11
  CountIF, CountIFS ................................................................................................................................................ 11
Formulas - Absolute Cell Referencing ..................................................................................................................... 12
  Formulas and Autofill .......................................................................................................................................... 12
  Formulas with Absolute Referencing .................................................................................................................. 12
Paste Special ............................................................................................................................................................ 13
  Pasting Individual Attributes ............................................................................................................................... 13
  Formats................................................................................................................................................................ 13
  Values .................................................................................................................................................................. 13
  Formulas .............................................................................................................................................................. 13
Excel II – Fill Downs, Sorting, Functions, and More

# NUMBER FORMATS

Excel is a powerful data analyzer, however, it’s computational power can be limited if we fail to format the data in the sheet properly. There is a great difference between simple text, versus a number, dates, time, or currencies etcetera.

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL</strong></td>
<td>The default number format that Excel applies when you type a number. For the most part, numbers that are formatted with the General format are displayed just the way you type them. However, if the cell is not wide enough to show the entire number, the General format rounds the numbers with decimals. The General number format also uses scientific (exponential) notation for large numbers (12 or more digits).</td>
</tr>
<tr>
<td><strong>NUMBER</strong></td>
<td>Used for the general display of numbers. You can specify the number of decimal places that you want to use, whether you want to use a thousand separator, and how you want to display negative numbers.</td>
</tr>
<tr>
<td><strong>CURRENCY</strong></td>
<td>Used for general monetary values and displays the default currency symbol with numbers. You can specify the number of decimal places that you want to use, whether you want to use a thousand separator, and how you want to display negative numbers.</td>
</tr>
<tr>
<td><strong>ACCOUNTING</strong></td>
<td>Use when your user looks to choose multiple responses within a relatively small amount of choices (2 to 10). Simple validation parameters dealing how many selections can be made.</td>
</tr>
<tr>
<td><strong>DATE</strong></td>
<td>Displays date and time serial numbers as date values, according to the type and locale (location) that you specify. Date formats that begin with an asterisk (*) respond to changes in regional date and time settings that are specified in Control Panel. Formats without an asterisk are not affected by Control Panel settings.</td>
</tr>
<tr>
<td><strong>TIME</strong></td>
<td>Displays date and time serial numbers as time values, according to the type and locale (location) that you specify. Time formats that begin with an asterisk (*) respond to changes in regional date and time settings that are specified in Control Panel. Formats without an asterisk are not affected by Control Panel settings.</td>
</tr>
<tr>
<td><strong>PERCENTAGE</strong></td>
<td>Multiplies the cell value by 100 and displays the result with a percent (%) symbol. You can specify the number of decimal places that you want to use.</td>
</tr>
<tr>
<td><strong>TEXT</strong></td>
<td>Treats the content of a cell as text and displays the content exactly as you type it, even when you type numbers.</td>
</tr>
</tbody>
</table>
AUTO FILL AND FLASH FILL

SIMPLE REPEAT

1. Place your cursor in the cell in which you wish to repeat its value.
2. Place your mouse on the Autofill Handle of the cursor (+).
3. Click and Drag down over numerous cells and let go.
   You will have quickly repeated the value in the field.

FILL DOWN COMMON SERIES

1. Place your cursor in the cell which maintains a very common data structure.
   Example: a date (7/12/2017)
2. Place your mouse on the Autofill Handle of the cursor.
3. Click and Drag down over numerous cells and let go.
   You will have quickly auto filled many dates in succession.

FILL DOWN CUSTOM SERIES

1. Enter a value into a single cell, and then in the cell below, enter the next successive value in which together the two data structures represent the pattern you wish to repeat.
   Example: 1/1/2017 and below it, 1/8/2017 (where both dates represent a Sunday)
2. Highlight both cells together.
3. Place your mouse on the Autofill Handle of the cursor.
4. Click and Drag down over numerous cells and let go.

FLASH FILL SERIES

1. Place your cursor in an empty column to the right of the data that needs to be re-structured (you may have to create this column).
2. Type the desired structure for the data and press enter.
3. In the next cell down, again type the desired data structure and press enter.
4. Highlight both cells together which maintain the desired data structure.
5. Place your mouse on the **Autofill** Handle of the cursor.
6. Click and Drag down over **numerous cells** and let go.
7. Click on the **Auto Fill Options** button right next to the Autofill Handle and choose **Flash Fill**.
NOTE: Make sure row 1 in your spreadsheet or the first row in the table/range you wish to sort is formatted as a header row. Sorts only work on contiguous rows in a range. Sorts will not work in a range with empty rows or empty cells in the column you’re sorting.

BASIC SORTING – SINGLE COLUMN

1. Place your cursor in a column that you wish to sort its data.
2. In the Home tab, click on the Sort & Filter button and choose Sort A to Z.

NOTE: Depending on the column’s data type definition (Text, Number, Date, Etc.) it will sort from smallest to largest (numbers) alphabetically for text, newest to oldest (dates).

SORT MULTIPLE COLUMNS

1. Place your cursor anywhere in a column heading that you wish to sort its data.
2. Click on the Sort & Filter button and choose Custom Sort…
3. Under Column, click on the Sort by drop-down list and choose which column you wish to sort.
4. Under Order, choose which order you wish to sort by.
5. Click on the Add Level button and in the Sort by drop-down and choose another column to sort by.
6. Under Order, choose which order you wish to sort by.
7. Click on OK.

Your first column is sorted and the second column is sorted within the first sort.

SORT CUSTOM ORDER

1. Place your cursor anywhere in a column that you wish to sort its data.
2. Click on the Sort & Filter button and choose Custom Sort…
3. Under Column, click on the Sort by drop-down list and choose which column you wish to sort.
4. Under Order, choose Custom list…
5. In the List entries: build your custom list by typing one instance of each data type and pressing enter between each one (list of how you want the data sorted).

You’ll end up with a custom data sort order.
6. Click on Add.
7. Click on OK and OK again.

Related Video

Sorting and Filtering
FILTERING

Filtering is about showing only records that fit certain criteria.

**NOTE:** Make sure row 1 in your spreadsheet or the first row in the table/range you wish to sort is formatted as header row.

FILTERING BY VALUE

1. Click in a **column heading** you wish to filter.
2. Click on the **Sort & Filter** button and choose **Filter**.
   
   You will see Auto Filter down arrows in your header rows.
3. Click on the **Filter** button in the column you wish to filter.
4. Remove the check mark for **Select All**.
5. Place a check mark on the **data type** you wish to filter for.
6. Click on **OK**.

MULTIPLE FILTERS

1. Create a desired **filter** on a column (see above).
2. Click on the **Filter** button for another column you wish to filter.
3. Choose the **filter** you wish to create.
   
   You have filtered once for data criteria in the first step, and then within this same data, added an additional filter.

Related Video

Filtering Data
CONDITIONAL FILTERING

1. Click in a **column** you wish to filter.

2. Click on the **Sort & Filter** button and choose **Filter**.

You will see Auto Filter down arrows in your header row.

3. Click on the **Filter** button for a column which

   maintains **number values**.

4. Point to Number Filters and choose **Less Than Or Equal To**...

5. Enter a **value**.

6. Click on **OK**.

**Note:** To clear your filter, click on the filter icon on the auto filter button for the column you have a filter applied and choose **Clear Filter From “column name”**. To remove the auto filter feature from your headings, click on the **Sort & Filter button and choose Filter.**
At its heart, Excel is a giant calculator. In fact, a simple way to think about Excel is to consider each cell in a worksheet like an individual calculator. An Excel spreadsheet has millions of cells, which means you have millions of individual calculators to work with. Not only that, but you can create formulas that link different cells together (e.g. add the value in this cell to the value in that cell).

Interesting fact: up to 1,048,576 rows and 16,384 columns. Column width can be 255 characters.

FORMULA BASICS

All formulas begin with the = character. This alerts Excel the entry is a formula, not a value entered.

Example to Adding: =SUM(5,5) or (5+5) The resulting cell value will be 10

Example to Subtraction: =SUM(a4-a3), Multiplication =SUM(a3*a4), Division =SUM(a3/a4)

FORMULA SYNTAX

A formula can also contain any or all of the following: functions, references, operators, and constants.

I’m a Formula

=SUM(D45,E45,F45)*.0825

Function References Operators Constants

Functions: The SUM Function allows you to do basic arithmetic within its parentheses.

References: D45 returns the value currently in cell D45, E45 returns the current value of cell E45, etc.

Operators: The * (asterisk) operator multiplies numbers.

Constants: Numbers or text values entered directly into a formula, such as .0825.

REFERENCING CELL RANGES IN FORMULAS

Referencing non-contiguous cells – A2,T66,L155,C5

Referencing a contiguous vertical range (range in a column) – C2:C54

Referencing a contiguous “table” range (rows and columns together) – C4:M276

Referencing multiple cells and or ranges - A2,T66,L155,C5,C4:M276

Note: Wherever your cursor is located in the sheet, the Formula Bar will show you it’s true contents. This will confirm whether or not the value in the cell is a static value entered in the cell or a value that is the result of a formula otherwise hiding in the cell.
COMMON FUNCTIONS

**SUM**

1. Place your cursor in cell K66 below the column of units sold (number values).
   
   Example: a column of number values in column K which span from cells K3 to K65.

2. Type =SUM(K3:K65).
   
   Where K3 is the beginning of the numbers to be added and K65 is the final number to be added.

3. Press enter.

**AVERAGE**

= AVERAGE(cellref:cellref)

Returns the average of the numbers found in the cell range defined.

**MIN**

= MIN(cellref:cellref)

Returns the minimum value of the numbers found in the cell range defined.

**MAX**

= MAX(cellref:cellref)

Returns the maximum value of the numbers found in the cell range defined.

**COUNTIF, COUNTIFS**

= COUNTIF(cellref:cellref,"criteria")

Returns the number of entries that comply with the defined criteria in the referenced range.


Returns the number of entries that comply with each defined criteria in each referenced range.
FORMULAS - ABSOLUTE CELL REFERENCING

FORMULAS AND AUTOFILL

Consider the formula below which we could use to get the product of two cells holding numeric values.

1. In L3 (Sub Total), type =SUM(I3*K3).
2. Autofill the above formula down the column it lives in.

   Nicely enough the row reference number in the formula increases by one automatically each time you fill down a row, again and again.
3. Under the Tax column cell M3, type =sum(L3*.0800) to get the tax amount of your subtotal.
   a. Fill down to row 65.

   **NOTE** - This feature allows us to autofill formulas that should change slightly relative to each column or row they are found in.

FORMULAS WITH ABSOLUTE REFERENCING

Consider this formula which we could use to generate the taxable value on an item sold; =sum(L3*.0800)

**NOTE** – We should rarely place numeric values in formulas. If we autofill the above formula; =sum(L3*.0800), the result would be a Tax Column of possibly thousands of rows and thousands of formulas – each one containing the value of .0800. However, the tax rate may change tomorrow.

1. Place the tax rate of .0825 in cell T10.
2. Now rewrite the above formula without referencing the tax rate value, reference the cell which holds the tax rate value.

   Example: =SUM(L3*T10)

   (T10 being the cell you chose to hold your tax value)

   Now if the tax rate changes you don’t have thousands of formulas to change – only the value in cell T10.
3. Autofill this formula down the Tax Column.

   You’ll notice a problem. The reference to T10 changes as you fill down to T11, T12, T13 and so on. But your tax rate figure is sitting absolutely in cell T10.
4. Change the above formula to; =SUM(L3*T$10).

   The dollar sign ($) will lock the row reference in the formula at 10. Now when you fill down the row the reference of T10 will not increase by 1 with each row when filling down.

   **NOTE** – Ultimately since the tax value will forever stay in cell T10, you’ll actually want to lock both the column and row reference like this; =SUM(L3*$T$10).
When looking at data in an Excel sheet or cell, you may simply see a value alone. However, that cell may contain a value, visual formats, as well as a formula. With paste special, you can choose which one of these attributes you paste.

**Pasting Individual Attributes**

1. **Highlight** a range of cells which maintain values, visual formats (borders and shading, font, etc.), as well as a formula.
2. Right-click on the highlighted range and choose **Copy**.
3. Right-click in the cell where you wish to **paste**.
4. Point to Paste Special and choose Paste Special.
5. In the Paste Special window, choose from one of these:

   - **Formats**
     Your resulting paste job has only pasted the **visual** formats.
   - **Values**
     Your resulting paste job pastes only the **values** in the cells.
   - **Formulas**
     Your resulting paste job has only pasted the **formulas**.
   - **Values and Number Formats**
     Your resulting paste job pastes the **values** and keeps the **number** formatting.
   - **Transpose Range**
     Pastes the copied range, but switches what was **rows** to **columns** and vice versa.

**Column Widths**

1. **Highlight** a column which maintains a width you’d like to apply to other columns.
2. Right-click on the highlighted range and choose **Copy**.
3. Highlight the column you wish to replicate the column width to, right-click in the column, point to Paste Special and choose Paste Special.
4. In the Paste Special window, choose **Column widths**.
5. Click on **OK**.

   Your resulting paste job has replicated the column width.
You may contact the following office for assistance with Microsoft Excel:

Training – Training Specialists  
[techtraining@sbcusd.com](mailto:techtraining@sbcusd.com)  
(909) 386-2550  
OR  
Check out the [Microsoft Excel Self Help Video Library](#)
PRACTICE FORMULAS

Excel File = Example Spreadsheet.xlsm, ask techtraining@sbcusd.com for this file to practice the following:

TOTAL UNITS SOLD

At cell location K66, total all the numbers above.

=SUM(K2:K65)

SUB TOTAL

At cell location L3, generate a sub total for the price for all units sold

=SUM(I3*K3)

COMPUTE TAX

At cell location M3, generate the tax amount

=SUM(L3*T$10)  T10 holds your tax rate, the $ allows fill down to work without changing 10

TOTAL

At cell location N3, generate the total

=SUM(L3,M3)

MARKUP

At cell location J3, determine markup percentage

=SUM(I3-H3)/H3