

# Excel 2016: Basics 2

## Math and Functions



# Excel 2016: Basics 2 - Math and Functions

2.0 hours

In this workshop we will work with patterns of text, numbers and dates; build simple equations; use basic mathematical functions such as SUM( ) and AVERAGE( ); learn about absolute and relative references, naming cells, and working with named cell ranges. This basic workshop assumes some experience with Microsoft Excel.

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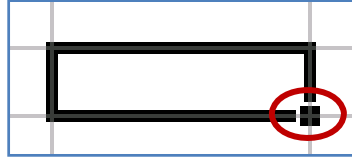
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## **Fill Handle**



The **Fill Handle** is in the bottom right corner of the selected cell. When you place your mouse over this *handle*, it changes from a thick white cross, to a thin black cross. Once you see the thin cross (no arrows) you can click and drag the cell to fill its contents in a single direction (up, down, left or right). If you want to go in two directions, you must first complete one way, let go of the mouse and then drag the handle in the second direction.

When you use the **Fill Handle** to pull down a single number or plain text, it will copy the data.

Text	123
Text	123
Text	123

When you use the **Fill Handle** to pull down a text with numbers, a date, a month or a weekday it will fill in a series.

Exam 1	2/1/02	February	Friday
Exam 2	2/2/02	March	Saturday
Exam 3	2/3/02	April	Sunday

When you select two or more numbers (including dates) and then use the **Fill Handle**, Excel will fill in the series, following the original pattern of the selected cells. It can only follow simple addition and subtraction patterns.


123	5	100	2/01/02
124	4	110	2/08/02
125	3	120	2/15/02
126	2	130	2/22/02

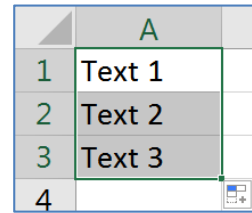
The **Fill Handle** will follow the format of the original cells. This includes number formats as well as capitalization,

Friday	FRIDAY	fri	\$123.00
Saturday	SATURDAY	sat	\$123.00
Sunday	SUNDAY	sun	\$123.00

If you double-click on the Fill Handle it will 'fill' as many cells as the previous column has in use.

### Fill Handle Options

When you use the **Fill Handle**, you will notice a symbol appear in the right hand bottom corner of your newly filled cells. This icon () represents your AutoFill Options. If you put your mouse over the icon you will see a drop down arrow that will give you a list of your fill options.



	A
1	Text 1
2	Text 2
3	Text 3
4	

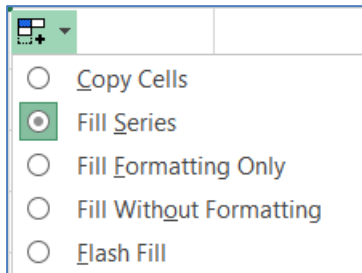
The four basic Fill Options are:

- Copy Cells – Repeat the cells along the selection
- Fill Series – Follow pattern along the selection
- Fill Format Only – Repeat the format of the cells along the selection
- Fill without Formatting – Follow the pattern along the selection, but not the format
- Flash Fill – Fills based on a pattern you establish in the same column

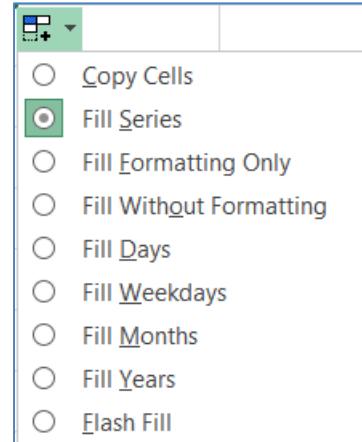
If you use the **Fill Handle** on cells with dates you will notice even more options:

- Fill Days
- Fill Weekdays
- Fill Months
- Fill Years

*Number Fill Options*



*Date Fill Options*



### Mathematical Operations

To let Excel know you expect it to "do math" you need start your cell with an equal sign (=).

- |                                |       |        |     |
|--------------------------------|-------|--------|-----|
| - Addition, plus sign (+)      | = 5+2 | result | 7   |
| - Subtraction, hyphen (-)      | = 5-2 | result | 3   |
| - (also used for negative)     | = -5  | result | -5  |
| - Multiplication, asterisk (*) | = 5*2 | result | 10  |
| - Division, slash (/)          | = 5/2 | result | 2.5 |
| - Exponent/Power, caret (^)    | = 5^2 | result | 25  |

There are several operands to use for logic comparisons.

- |   |       |        |       |
|---|-------|--------|-------|
| - Greater than, greater than sign (>)                 | =5>2  | result | TRUE  |
| - Less than, less than sign (<)                       | =5<2  | result | FALSE |
| - Equal to, equal sign (=)                            | =5=2  | result | FALSE |
| - Not equal to, both greater and less than signs (<>) | =5<>2 | result | TRUE  |

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## **Building an Equation**

You can directly type in values, but that data stays constant. If you want to have the answers to your equations update as you change your data, you should use the cell addresses. You will see the cell addresses change colors so you can tell which ones are used in your equation.

### ***Type in the exact cell address***

Cells are labeled by their row and column headings. Rows are numbered and go horizontally across (rows of chairs) and columns are lettered and go vertically top to bottom (columns of a building). When we refer to the address of a cell, we use the column letter then the row number such as A1.

- Click in the cell where the answer will appear
- Press the Equal sign (=)
- Type in the cell address you want to use in your equation
- Accept the answer or press the next math operator (+, -, \*, /, ^)

	A	B	C
1	1	2	=a1+b1
2			

### ***Use the keyboard to point to the cell address***

When you first enter a character into a cell, you will be in "ENTER" mode. This includes when you type an equal sign. But if you press an arrow key on the keyboard after the equal sign, Excel does not move out of the cell. Instead you will be put into a "POINT" mode, and Excel will color coordinate the cell you are selecting.

- Click in the cell where the answer will appear
- Press the Equal sign (=)
- Press the arrow keys until you are on the cell you want to use in your equation
- Accept the answer or press the next math operator (+, -, \*, /, ^)

	A	B	C
1	1	2	=A1
2			

### ***Use the mouse to point to the cell address***

The mouse and arrow keys are both "pointers". If you press the equal sign and then use the mouse to click on another cell, Excel will put you into a "POINT" mode, and place the address of the cell you clicked on in your equation.

- Click in the cell where the answer will appear
- Press the Equal sign (=)
- Use the mouse to click on the cell you want to use in your equation
- Accept the answer or press the next math operator (+, -, \*, /, ^)

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