

# Mathematical Formulas and Excel

## Formulas and Functions

Tuesday April 5, 2016

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### Formulas



- The real power of spreadsheets.
- Automatically calculates math, based on formulas that you input into specific cells.
- What can you include in these formulas?
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  - .
  - .
  - .
  - .

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### Formulas



- **Indicator**
  - the \_\_\_\_\_ sign in a spreadsheet formula
  - **always** start formulas with an \_\_\_\_\_
- **Syntax**
  - Formulas must follow a \_\_\_\_\_ in order to work properly.
  - Excel: Follows the \_\_\_\_\_ rule
  - Brackets, Exponents, Division, Multiplication, Addition, Subtraction

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## Getting Used to Formulas

- To add numbers together
  - Type \_\_\_\_\_, **NOT** \_\_\_\_\_ in the active cell (where the answer should appear).
  - .
  - .
- To Multiply or Divide
  - Cells are separated by either \* (multiplication) or / (division)
  - .
  - .

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## What makes up a formula?

- 1) .
- 2) .
- 3) .

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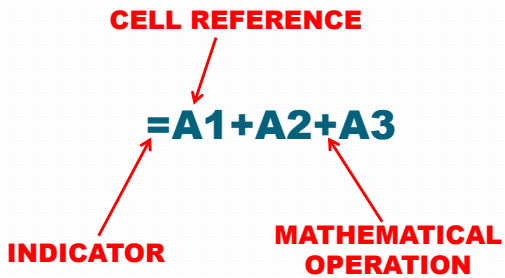
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## Functions in Excel

- Using a function instead of a formula will make the input of data much faster.
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- Instead of entering every individual cell – you can insert a function and select a **range** of cells.
  - Example: Instead of the **formula** =  
We use the **function** =

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## Spreadsheet Functions

- Frequently Used Spreadsheet Functions
  - **SUM** –
  - **MIN** –
  - **MAX** –
  - **AVERAGE** or **AVG** –
  - **COUNT** –

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## What makes up a function?

- 1) .
- 2) .
- 3) .

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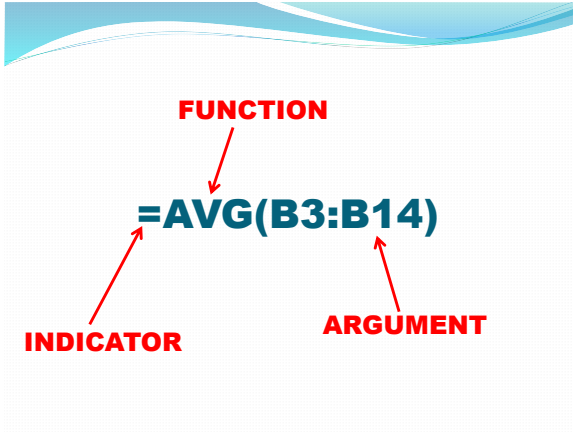
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## Inserting Functions

- Click on the *fx* button next to the formula bar.
- Select the function you wish to insert.
  - You may have to search for it using the search bar.
- A dialog box will appear that will allow you to select your cells/range.
  - Non consecutive cells are separated by a comma (,)  
• =SUM(A1, B4, B5)
  - Consecutive cells are separated by a colon (:)  
• =SUM(A1:B5)

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## Fill Down and Fill Across

- This allows you to take a formula or data input and replicate it down an entire column or across an entire row.
  - **Absolute Cell Referencing:**
    - . .
    - . .
  - **Relative Referencing:**
    - . .
    - . .

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	A	B	C	D	E	F	G
1	<b>Relative Cell Referencing</b>						
2	1	2	3	4	5	6	
3	5	6	8	9	7	8	
4	2	5	4	6	9	5	
5							
6	8	13	15	19	21	19	
7							

	A	B	C	D	E	F
1	<b>Relative Cell Referencing</b>					
2	1	2	3	4	5	6
3	5	6	8	9	7	8
4	2	5	4	6	9	5
5						
6	=SUM(A2+A3+A4)	=SUM(B2+B3+B4)	=SUM(C2+C3+C4)	=SUM(D2+D3+D4)	=SUM(E2+E3+E4)	=SUM(F2+F3+F4)
7						

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	A	B	C	D	E	F	G	H
1	<b>Absolute Cell Referencing</b>							
2	1	2	3	4	5	6		8
3	5	6	8	9	7	8		
4	2	5	6	6	9	5		
5								
6	64	104	136	152	168	152		
7								

	A	B	C	D	E	F	G
1	<b>Absolute Cell Referencing</b>						
2	1	2	3	4	5	6	8
3	5	6	8	9	7	8	
4	2	5	6	6	9	5	
5							
6	=SUM(A2:A4)	=SUM(B2:B4)	=SUM(C2:C4)	=SUM(D2:D4)	=SUM(E2:E4)	=SUM(F2:F4)	
7							

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## Tips

- Pressing **CTRL + ~ (tilde)** allows you to toggle between viewing your values and formulas/functions in a spreadsheet.
- **ESC** will allow you to exit out of inserting a formula/function if you have made an error.
- Double clicking on the seam of a column or row will automatically adjust it to be the width of the information in the cell.

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## Common Errors in Excel

### Formulas

- **#####** means the column is too narrow for the values.
- **#NAME?** means a cell name is incorrect (ie. AQ instead of A3).
- **#REF!** means a cell you are referring to in a calculation has likely been deleted.
- **#VALUE!** means a cell you want to use in a formula is probably a label.

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