

# BASIC EXCEL FUNDAMENTALS

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# Agenda

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Excel Interface

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Workbooks & Worksheets

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Tables, Records, and Fields

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Basic Formulas

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Basic Sorting and Filtering

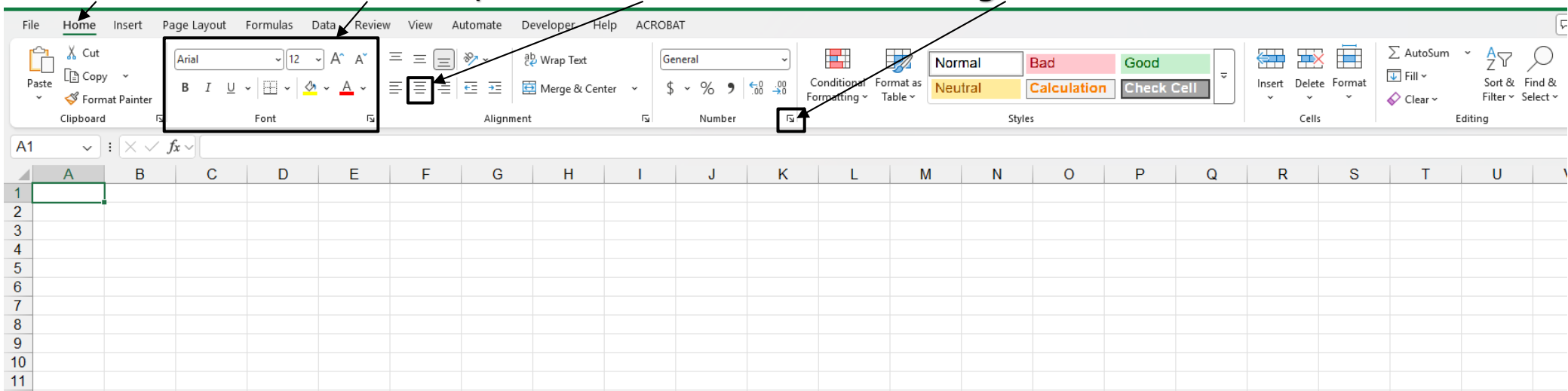
# Excel Interface – Ribbon Structure

Ribbon Tabs

Ribbon Groups

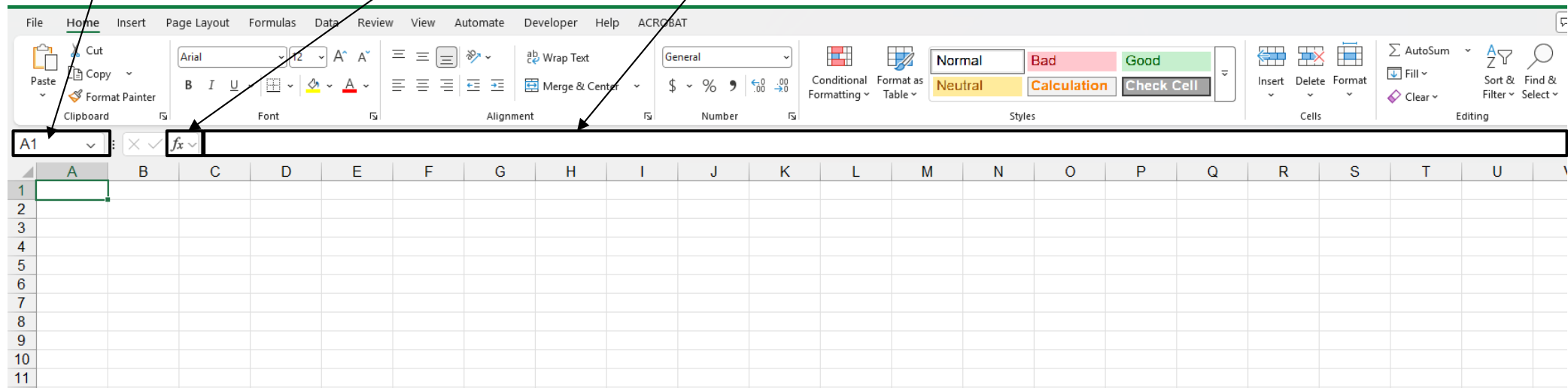
Command Button

Dialog Launcher

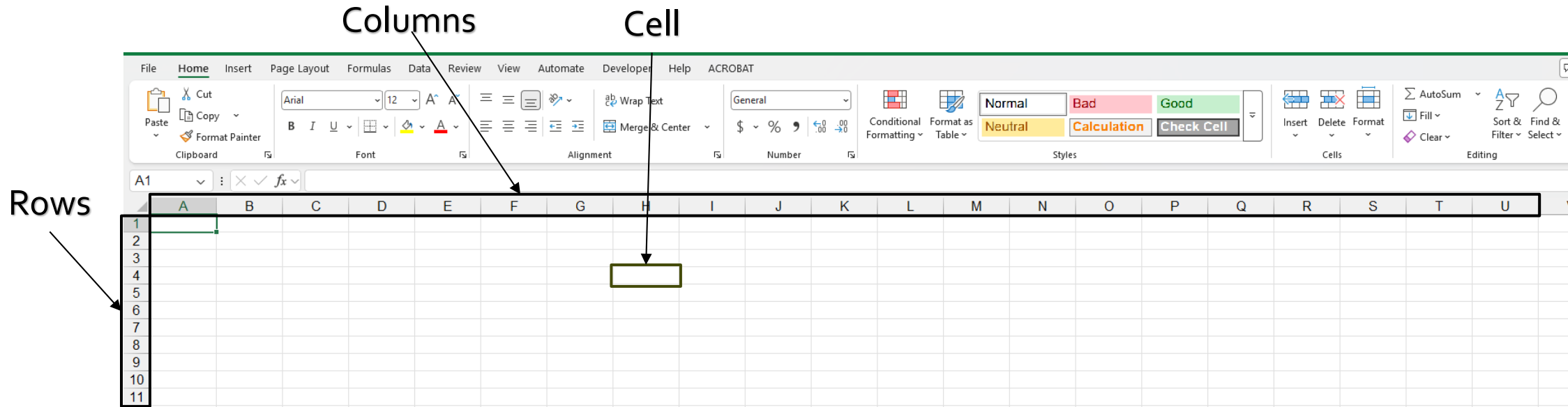


# Excel Interface – Formula Bar

Cell Name    Insert Function Button    Formula Bar



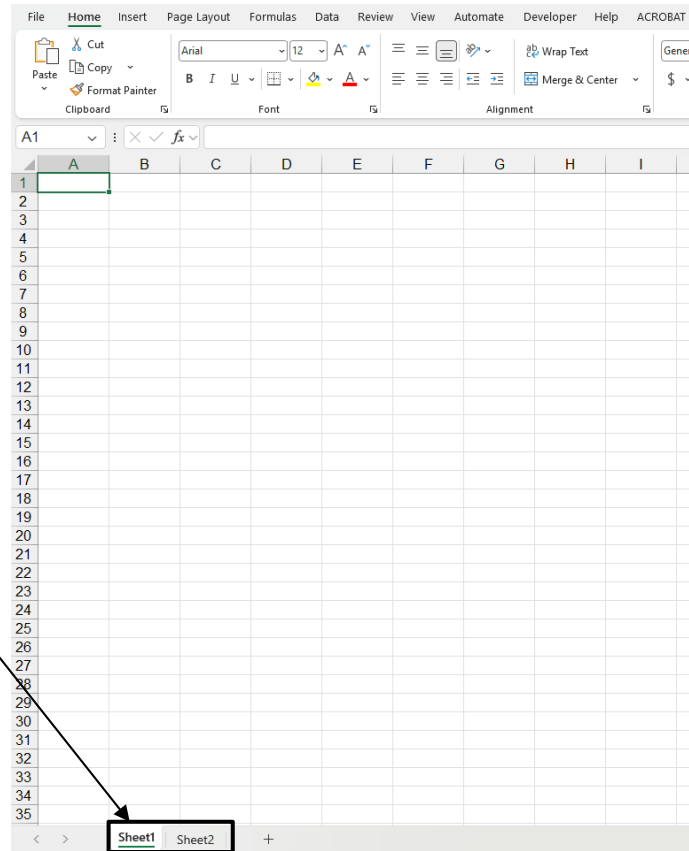
# Excel Interface – Rows, Columns, Cell



# Workbooks & Worksheets

**Workbook** – the entire Excel file that contains one or more worksheets.

**Worksheet** – an individual sheet within the workbook



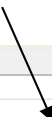
# Tables, Records, and Fields

Field - a single category or type of information represented by a column in a table.

|    | A             | B            | C                        | D                              | E                        | F               | G                    | H                  | I                           | J           |
|----|---------------|--------------|--------------------------|--------------------------------|--------------------------|-----------------|----------------------|--------------------|-----------------------------|-------------|
| 1  | Parcel_Number | Parcel_Class | Subdiv_Descr             | Occupancy                      | Main_Style_Descr         | Gross_Bldg_Area | Main_Condition_Descr | Main_Basement_Area | Main_Air_Conditioning_Descr | Total_Acres |
| 2  | 13-0007100    | Residential  | NONE                     | Single-Family / Owner Occupied | 1 Story Frame            | 1232            | Normal               | 1232.0             | Yes                         | 9.3         |
| 3  | 44-0182150    | Residential  | CLYDE SUBDIVISION        | Single-Family / Owner Occupied | Mfd Home (Single)        | 960             | Normal               | 0.0                | Yes                         | 1.1         |
| 4  | 11-0147000    | Residential  | CROSS S SUBDIVISION      | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 2280            | Normal               | 0.0                | Yes                         | 10.0        |
| 5  | 52-0190000    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1456            | Normal               | 0.0                | Yes                         | 7.0         |
| 6  | 52-0190100    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 2316            | Good                 | 0.0                | Yes                         | 8.9         |
| 7  | 52-0190300    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1509            | Normal               | 1482.0             | Yes                         | 8.9         |
| 8  | 52-0190400    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1823            | Normal               | 1508.0             | Yes                         | 11.0        |
| 9  | 52-0190600    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1680            | Normal               | 0.0                | Yes                         | 10.4        |
| 10 | 52-0190700    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1232            | Normal               | 0.0                | Yes                         | 12.6        |
| 11 | 52-0190800    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1203            | Normal               | 1189.0             | Yes                         | 13.0        |
| 12 | 52-0190900    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1406            | Above Normal         | 1392.0             | Yes                         | 19.2        |
| 13 | 52-0191000    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1988            | Normal               | 0.0                | Yes                         | 10.0        |
| 14 | 52-0191100    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 1/2 Story Frame        | 2276            | Normal               | 1144.0             | Yes                         | 17.8        |
| 15 | 52-0191200    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 2398            | Normal               | 789.0              | Yes                         | 19.7        |
| 16 | 52-0191300    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1876            | Normal               | 0.0                | Yes                         | 12.4        |
| 17 | 52-0192100    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Frame            | 1512            | Normal               | 1512.0             | Yes                         | 28.3        |
| 18 | 52-0192200    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Frame            | 1132            | Normal               | 1132.0             | Yes                         | 20.0        |
| 19 | 52-0192300    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Log-Pine         | 2730            | Above Normal         | 1134.0             | Yes                         | 20.0        |
| 20 | 52-0192400    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Frame            | 1476            | Normal               | 1460.0             | Yes                         | 25.5        |

# Tables, Records, and Fields

Record - a complete set of related information about a single item, person, transaction, or event, typically represented by a row in a table.



|    | A             | B            | C                        | D                              | E                        | F               | G                    | H                  | I                           | J           |
|----|---------------|--------------|--------------------------|--------------------------------|--------------------------|-----------------|----------------------|--------------------|-----------------------------|-------------|
| 1  | Parcel Number | Parcel Class | SubdivDescr              | Occupancy                      | Main_Style_Descr         | Gross_Bldg_Area | Main_Condition_Descr | Main_Basement_Area | Main_Air_Conditioning_Descr | Total_Acres |
| 2  | 13-0007100    | Residential  | NONE                     | Single-Family / Owner Occupied | 1 Story Frame            | 1232            | Normal               | 1232.0             | Yes                         | 9.3         |
| 3  | 44-0182150    | Residential  | CLYDE SUBDIVISION        | Single-Family / Owner Occupied | Mfd Home (Single)        | 960             | Normal               | 0.0                | Yes                         | 1.1         |
| 4  | 11-0147000    | Residential  | CROSS S SUBDIVISION      | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 2280            | Normal               | 0.0                | Yes                         | 10.0        |
| 5  | 52-0190000    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1456            | Normal               | 0.0                | Yes                         | 7.0         |
| 6  | 52-0190100    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 2316            | Good                 | 0.0                | Yes                         | 8.9         |
| 7  | 52-0190300    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1509            | Normal               | 1482.0             | Yes                         | 8.9         |
| 8  | 52-0190400    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1823            | Normal               | 1508.0             | Yes                         | 11.0        |
| 9  | 52-0190600    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1680            | Normal               | 0.0                | Yes                         | 10.4        |
| 10 | 52-0190700    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | Mfd Home (Multi-Section) | 1232            | Normal               | 0.0                | Yes                         | 12.6        |
| 11 | 52-0190800    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 1203            | Normal               | 1189.0             | Yes                         | 13.0        |
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| 15 | 52-0191200    | Residential  | HIGH COUNTRY ESTATES     | Single-Family / Owner Occupied | 1 Story Frame            | 2398            | Normal               | 789.0              | Yes                         | 19.7        |
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| 17 | 52-0192100    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Frame            | 1512            | Normal               | 1512.0             | Yes                         | 28.3        |
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| 19 | 52-0192300    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Log-Pine         | 2730            | Above Normal         | 1134.0             | Yes                         | 20.0        |
| 20 | 52-0192400    | Residential  | HIGH COUNTRY ESTATES 3RD | Single-Family / Owner Occupied | 1 Story Frame            | 1476            | Normal               | 1460.0             | Yes                         | 25.5        |



# Tables, Records, and Fields

Table - a structured range of related data that is organized into rows and columns.



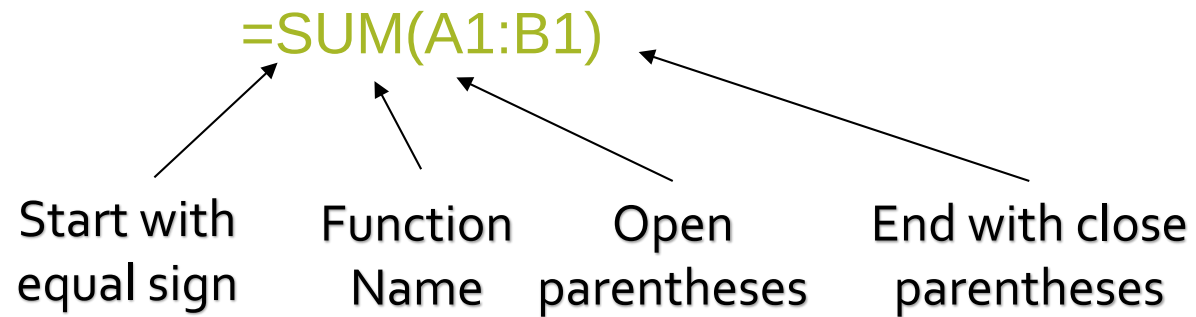
|    | A             | B            | C                        | D                              | E                        | F               | G                    | H                  | I                           | J           |
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# Basic Formulas

- Formula - an expression that performs a calculation or operation using values, cell references, functions, and operators.
- Components
  - Equal sign (=) every formula begins with an equal sign. The equal sign tells Excel that the cell contains a calculation or function.
  - Cell References – refer to values stored in other cells (e.g., = A1 + B1)
  - Constants – numbers or text entered directly into the formula (e.g., =A1 + 100)
  - Operators – symbols that tell Excel what calculation to perform.
    - + Addition
    - - Subtraction
    - \* Multiplication
    - / Division
    - ^ Exponent

# Basic Formulas

- Functions – predefined formulas that perform specific calculations



- If more than one argument, each argument is separated by a comma (,)

# Basic Formulas – Anchored Cell Reference

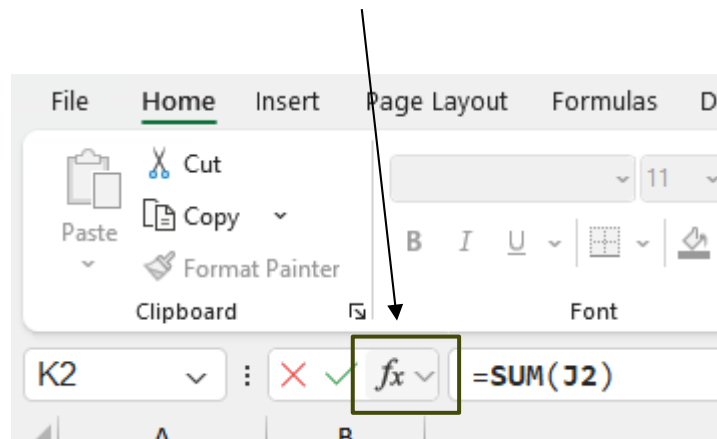
- What is an Anchored Cell Reference? An anchored (absolute) reference keeps a row, column, or both from changing when you copy a formula.

| • Reference | Changes When Copied?  | Example  |
|-------------|-----------------------|----------|
| • A1        | Row and column change | Relative |
| • \$A\$1    | Neither changes       | Absolute |
| • \$A1      | Column locked         | Mixed    |
| • A\$1      | Row locked            | Mixed    |

# Basic Formulas

- Excel provides help with creating formulas:

## Insert Function Button



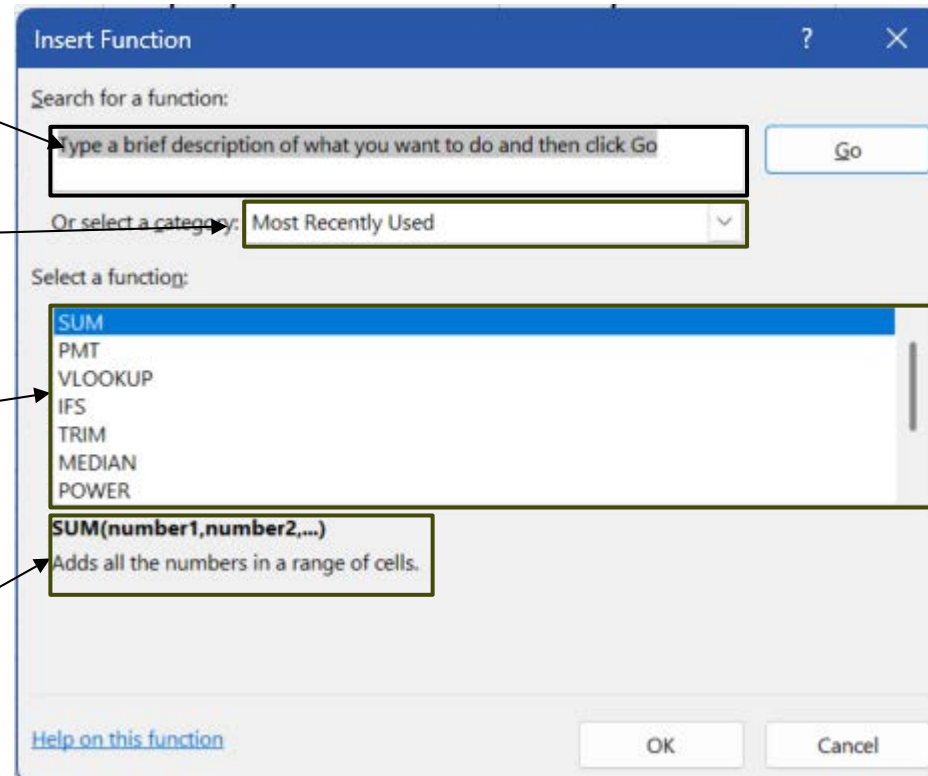
# Basic Formulas

Search box

Select a  
Category

Function  
List

Help for  
selected  
Function



# Basic Formulas

Function Arguments –  
**Bold** is required,  
Regular is optional

Formula  
Result

The screenshot shows the 'Function Arguments' dialog box for the SUM function. The dialog has a blue title bar with a question mark and a close button. The main area is divided into two sections. The top section, titled 'SUM', contains two input fields: 'Number1' with the value '12' and 'Number2' which is empty. To the right of these fields are two small icons (up and down arrows) and the text '= 9.32' and '= number' respectively. The bottom section contains a description of the function: 'Adds all the numbers in a range of cells.' and a detailed description for the 'Number1' argument: 'Number1: number1,number2,... are 1 to 255 numbers to sum. Logical values and text are ignored in cells, included if typed as arguments.' Below the description is a box showing the formula result: 'Formula result = 9.32'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'. A link 'Help on this function' is also present.

Function Arguments

SUM

Number1 12 = 9.32

Number2 = number

Adds all the numbers in a range of cells.

Number1: number1,number2,... are 1 to 255 numbers to sum. Logical values and text are ignored in cells, included if typed as arguments.

Formula result = 9.32

[Help on this function](#)

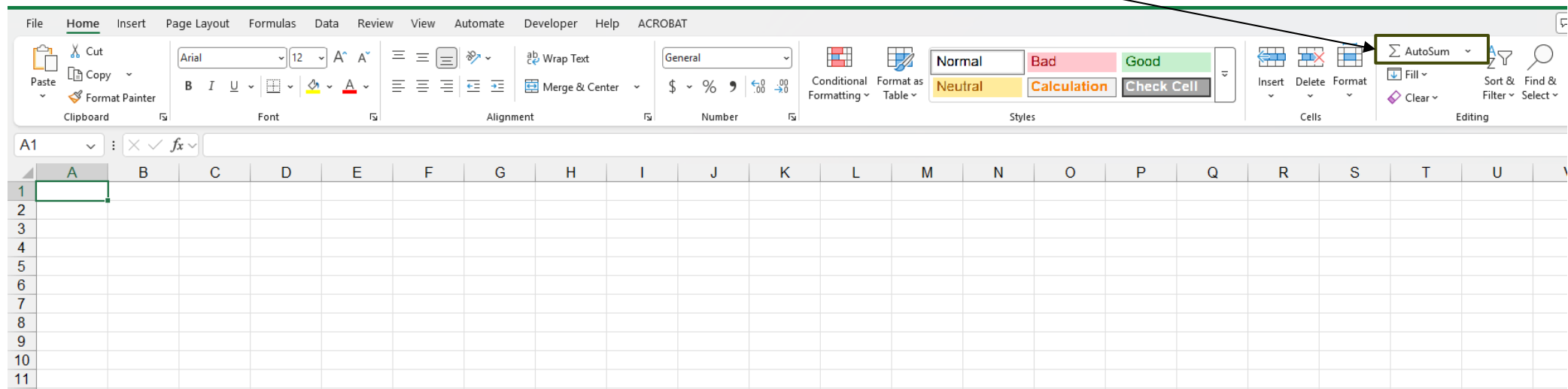
OK Cancel

Description  
of Function

Help for  
current  
Argument

# Basic Formulas

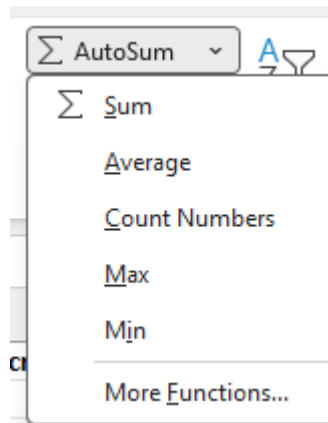
- Can also use the AutoSum button





# Basic Formulas

- Does more than just sum



# Basic Formulas – Rounding

- The **ROUND** function rounds a number to a specified number of digits, making values easier to read and ensuring consistent calculations. You can round to decimal places, whole numbers, or even to the nearest 10, 100, or 1,000.
- =ROUND(number, num\_digits)
- For num\_digits a positive number rounds to the right of the decimal, a negative number rounds to the left of the decimal

# Basic Formulas - Rounding

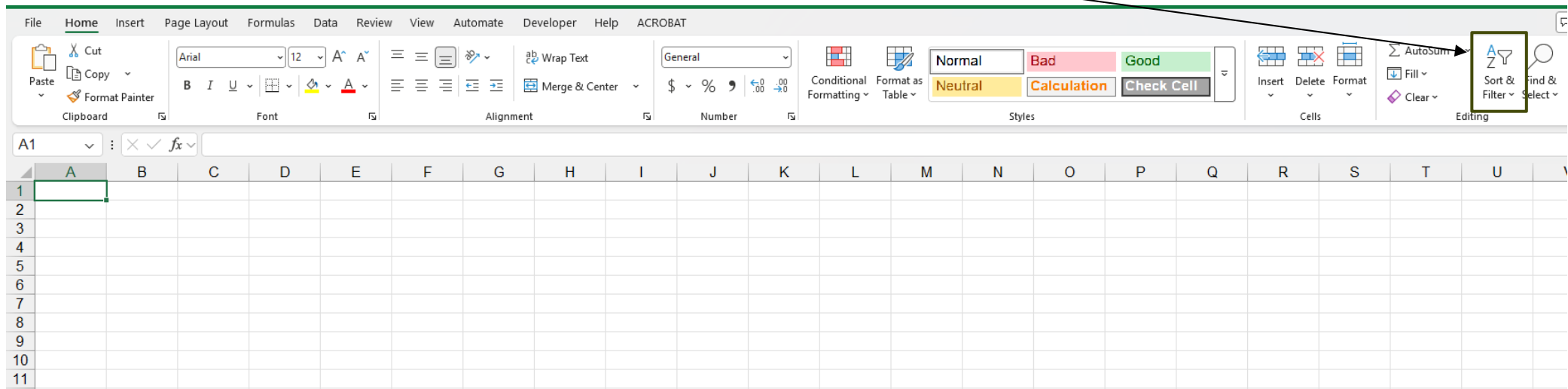
- Using this number - **136,752.12732**
- =round(136,752.12732,2) results in 136,752.13
- =round(136,752.12732,1) results in 136,752.1
- =round(136,752.12732,0) results in 136,752
- =round(136,752.12732,-1) results in 136,750
- =round(136,752.12732,-2) results in 136,800
- =round(136,752.12732,-3) results in 137,000
- =round(136,752.12732,-4) results in 140,000

# Basic Formulas - Rounding

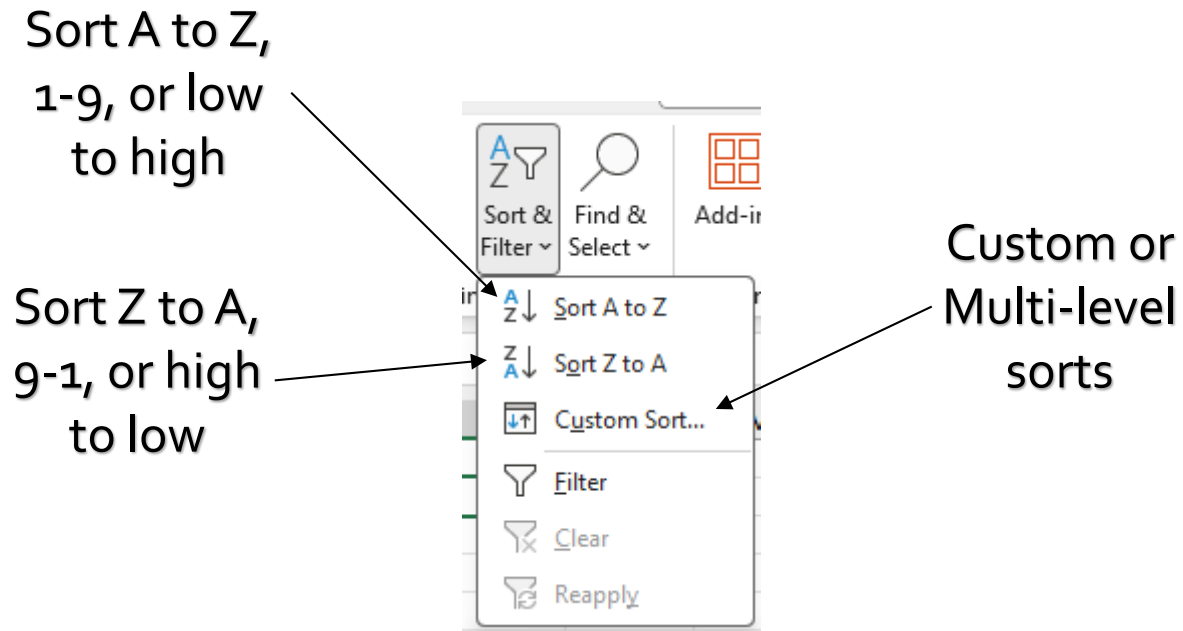
- Can also use =roundup() and =rounddown(), these work exactly like =round() only they force the rounding up or down regardless of the normal rounding rules.
- For example:
- =round(136,752.12732,-1) results in 136,750
- =roundup(136,752.12732,-1) results in 136,760 rounds up on the 5 ignoring the 2 which would normally result in rounding down
- =round(136,752.12732,-2) results in 136,800
- =rounddown(136,752.12732,-2) results in 136,700 rounds down on the 7 ignoring the 5 which would normally result in rounding up.

# Basic Sorting and Filtering

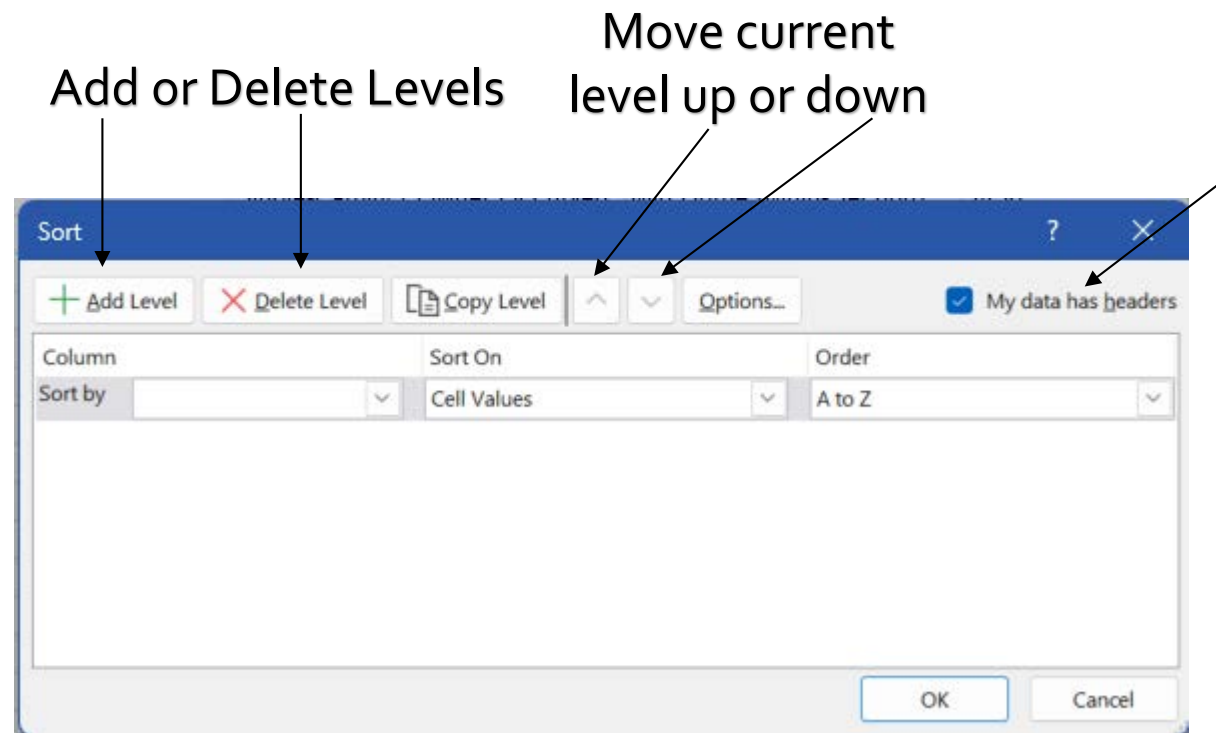
- Sort and Filter Button



# Basic Sorting and Filtering

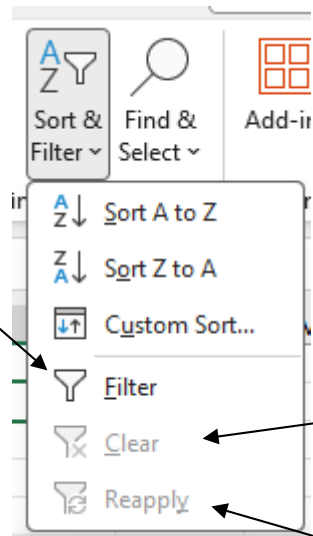


# Basic Sorting and Filtering



# Basic Sorting and Filtering

Turn on Filters



Clear all Filters

Reapply Filter if  
data has changed



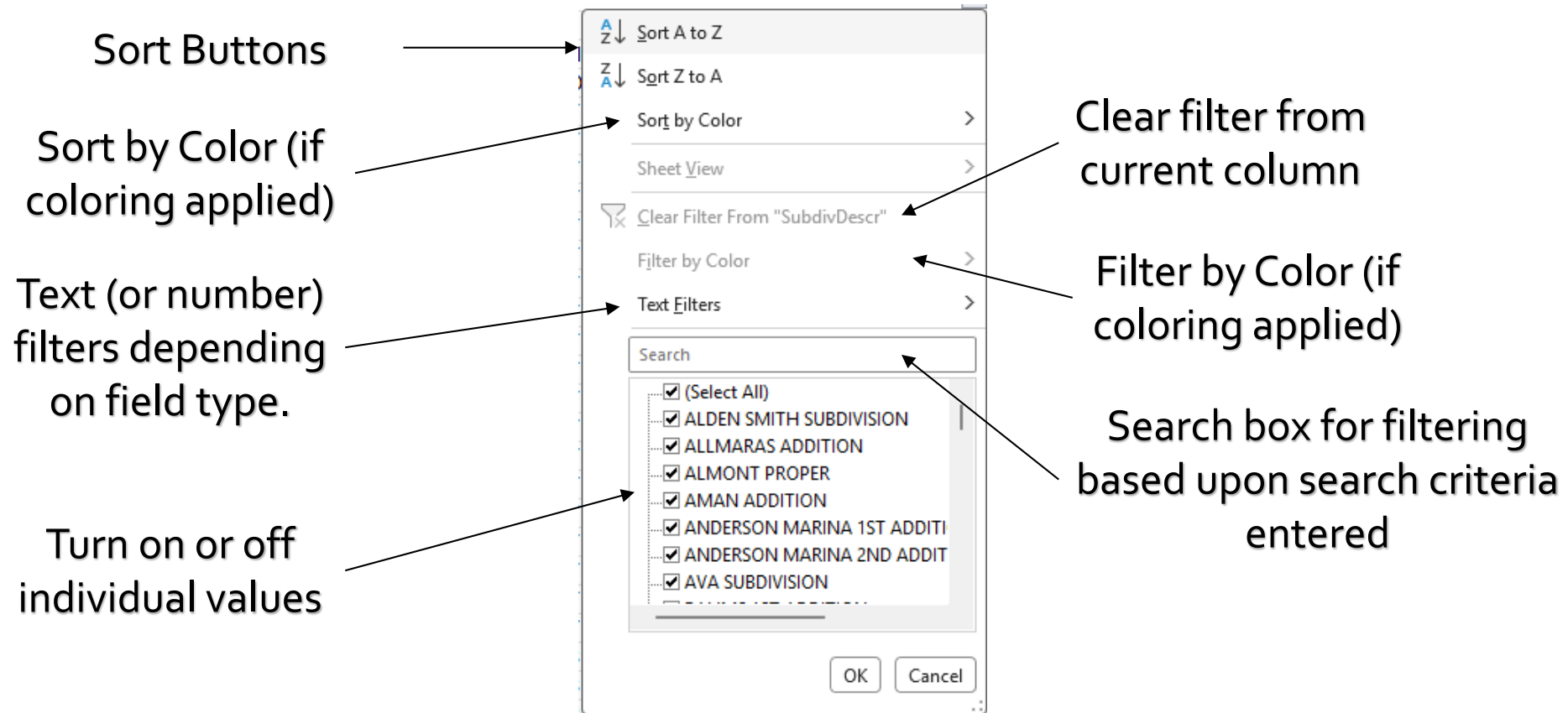
# Basic Sorting and Filtering

## Filter Buttons

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. The 'Filter' button is highlighted in the ribbon. Below the ribbon, a table of data is displayed with columns A through J. The table contains two rows of data. The first row is the header row, and the second row is the data row. The table is filtered to show only the data row.

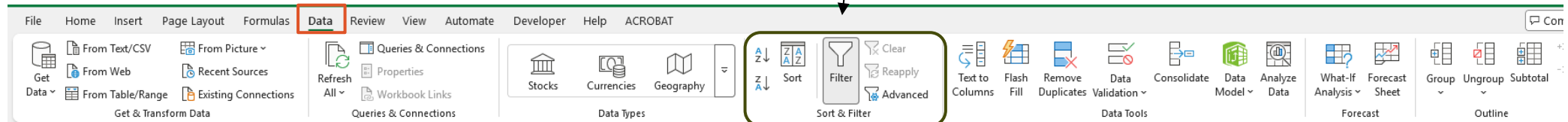
|   | A           | B           | C           | D                              | E                | F              | G                  | H                 | I                         | J         |
|---|-------------|-------------|-------------|--------------------------------|------------------|----------------|--------------------|-------------------|---------------------------|-----------|
| 1 | Parcel_Numb | Parcel Cla  | SubdivDescr | Occupancy                      | Main_Style_Descr | Gross_Bldg_Are | Main_Condition_Des | Main_Basement_Are | Main_Air_Conditioning_Des | Total_Acr |
| 2 | 13-0007100  | Residential | NONE        | Single-Family / Owner Occupied | 1 Story Frame    | 1232           | Normal             | 1232.0            | Yes                       | 9.3       |

# Basic Sorting and Filtering



# Basic Sorting and Filtering

There is a second copy  
of these buttons on the  
Data Ribbon



# Helpful Keyboard Shortcuts

- Arrow keys move up, down, left, right one column or row
- Control + down arrow – moves to the end of the data (or first blank field) in the current column
- Control + up arrow – moves to the beginning of the data (or first blank field) in the current column
- Control + right arrow – moves to the end of the record (or first blank field) in the current row
- Control + left arrow – moves to the beginning of the record (or first blank field) in the current row
- Control + home – moves to the beginning (cell A1)
- Control + end – moves to the recognized end of the data (might not always be right)
- Page Down – moves down one visible page
- Page Up – moves up one visible page
- Holding shift while using above keys highlights and expands the selection as you move
- Control + X – shortcut for cut
- Control + C – shortcut for copy
- Control + V – shortcut for paste

# Contact Information

Donald LaFleur

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701-667-3325