Indiana
Department of Local Government Finance

Committed to a fair and equitable property tax system for Hoosier taxpayers.

Indiana Assessors' Association

Excel Excellence

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August 2011

Agenda

- The Benefits of Excel
- Back to Basics
- Hand-On Exercises

THE BENEFITS OF EXCEL

Why Use Excel?

- Excel spreadsheets allow additional analytical capability without requiring your software vendor to program a specific analysis for you.
- Excel can be an easy way to review significant amounts of data to identify particular issues or situations.
- Excel can be used to check calculations performed within your CAMA system to verify accuracy.

Why Use Excel?

- Excel provides a generally universal method for sharing data and information with others.
- Excel can be used to prepare custom handouts and reports to highlight particular findings.

Microsoft Excel

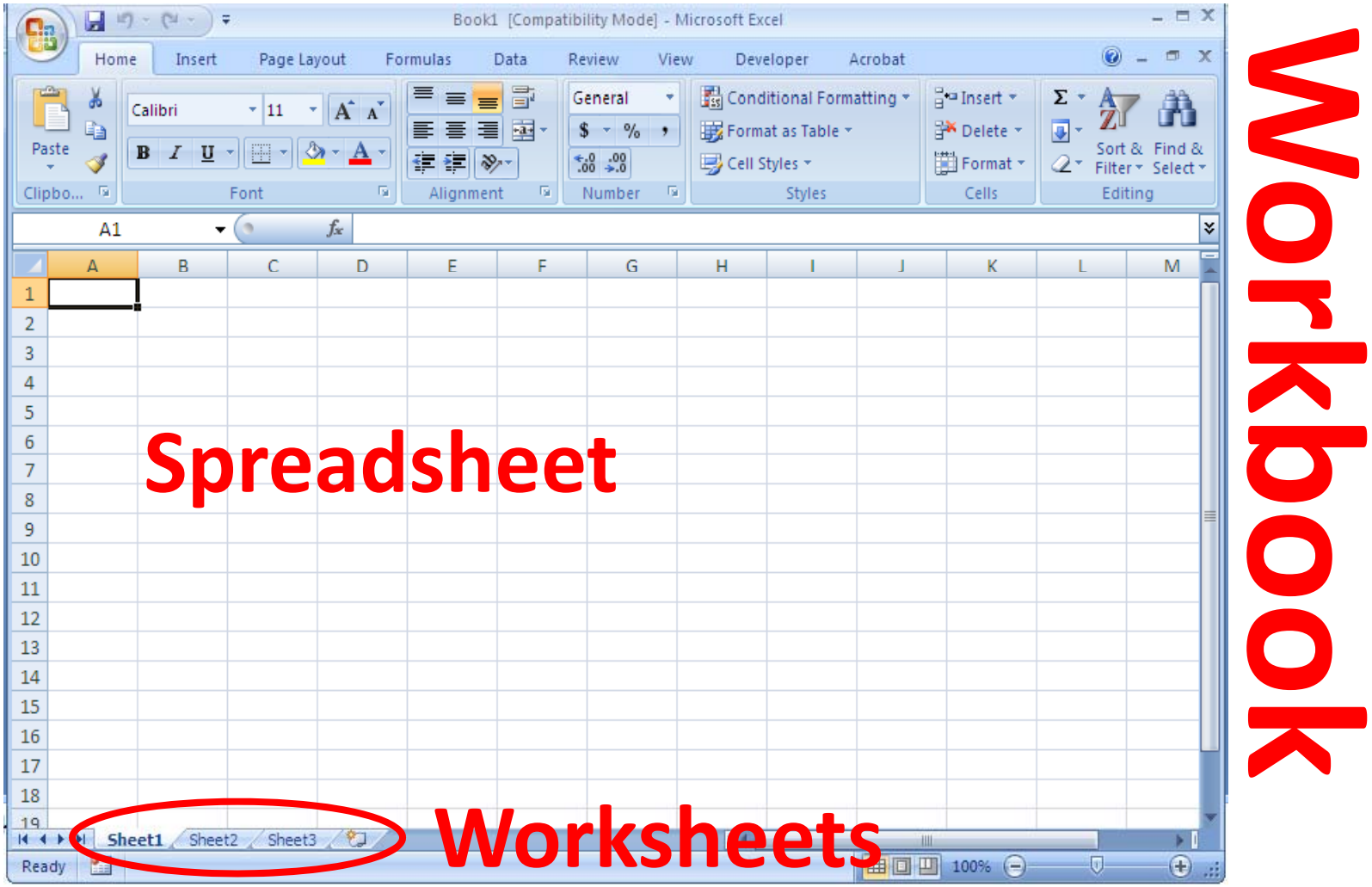
- Common versions:
  - Excel 2007
  - Excel 2003
- While this discussion will focus on Microsoft Excel, some of the capabilities discussed in this class would also be present in other spreadsheet packages. Typically, the Help option can be used to find particular functionality.

BACK TO BASICS

Terminology

- Spreadsheet – Table used to store and display data. The table is arranged by rows and columns.
- Worksheet – Single page or tab within the Excel workbook.
- Workbook – The entire spreadsheet file.

Terminology



Workbook

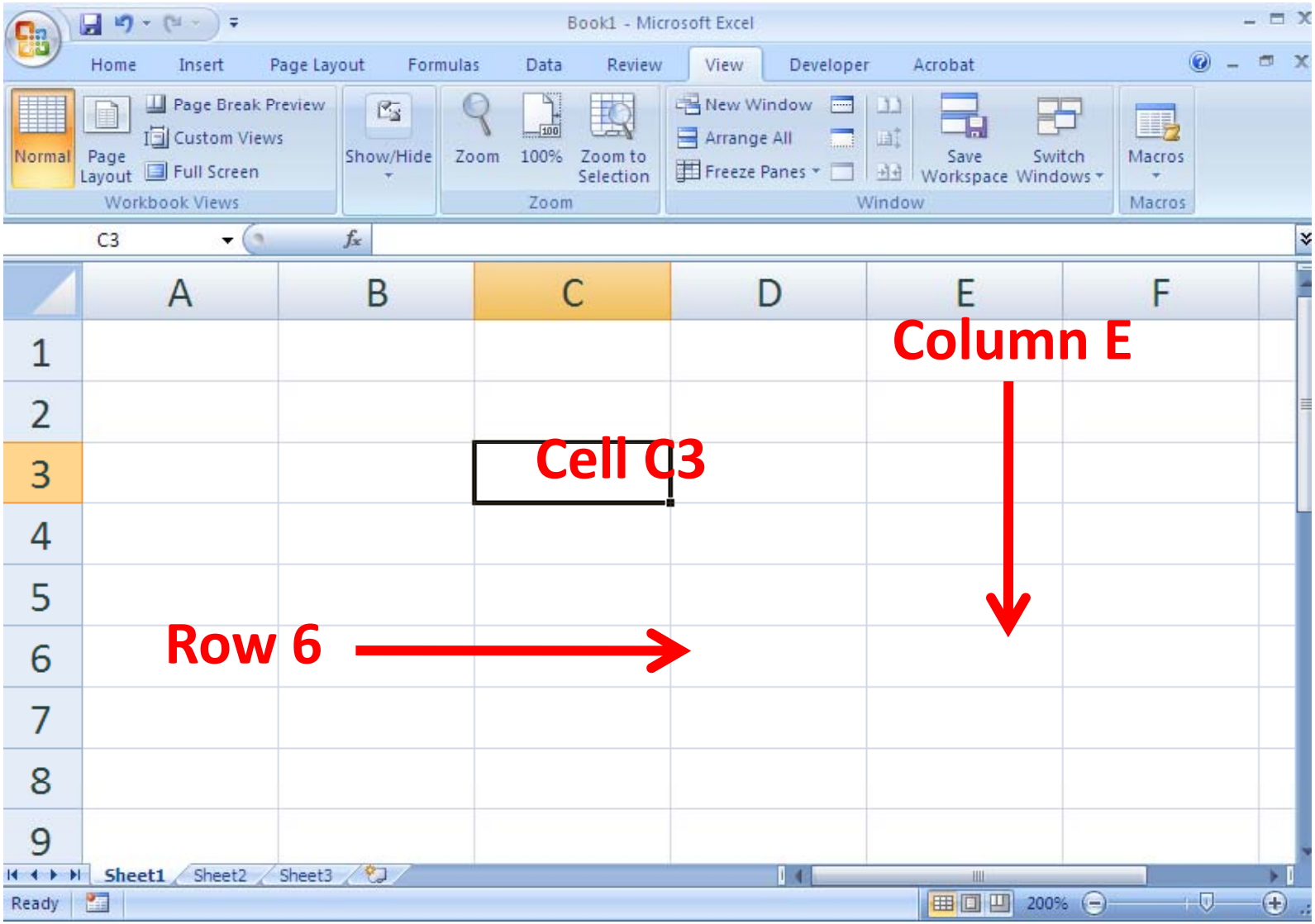
Terminology

- Row – Horizontal array of data.
  - Signified by numbers – Row 1, Row 2, etc.
  - Maximum number of rows:
    - Excel 2003 – 65,536
    - Excel 2007 – 1,048,576
- Column – Vertical array of data.
  - Signified by letters – Column A, column B, etc.
  - Maximum number of columns:
    - Excel 2003 – 256
    - Excel 2007 – 16,384

Terminology

- Cell – Individual cell. Intersection of a row and a column.
  - Signified by a combination of the column letter and the row number.
    - Examples: A1, C300, BA42

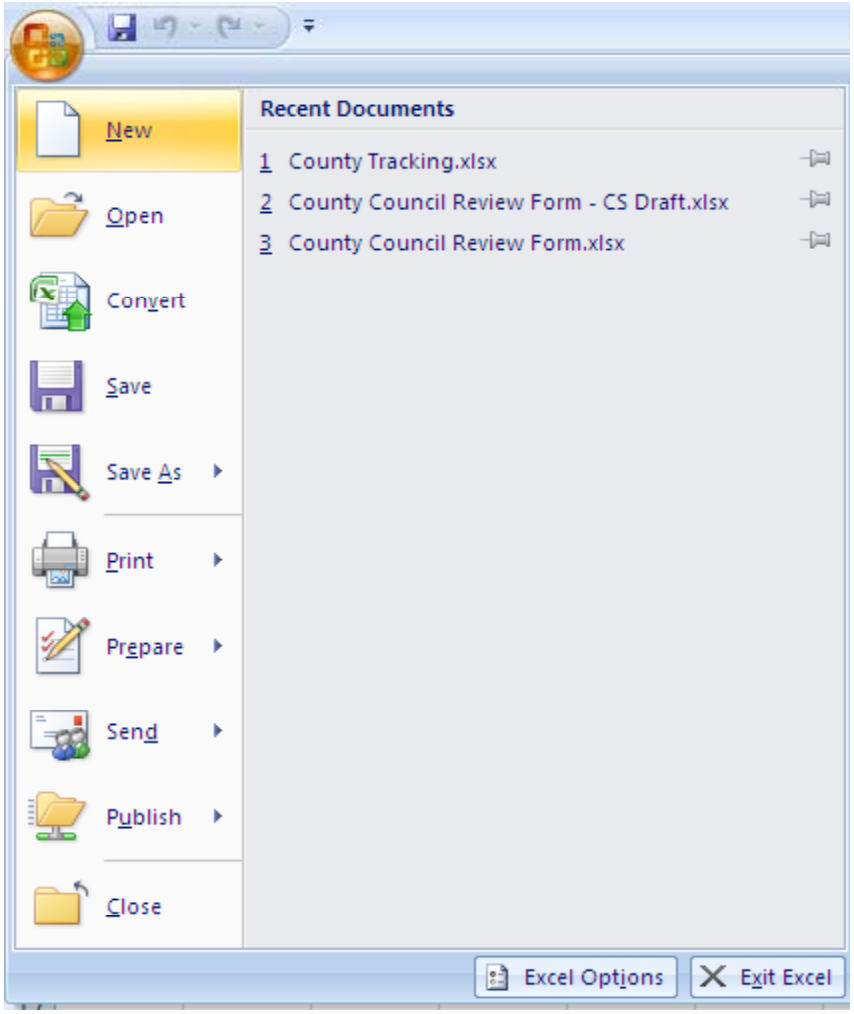
Terminology



Menus

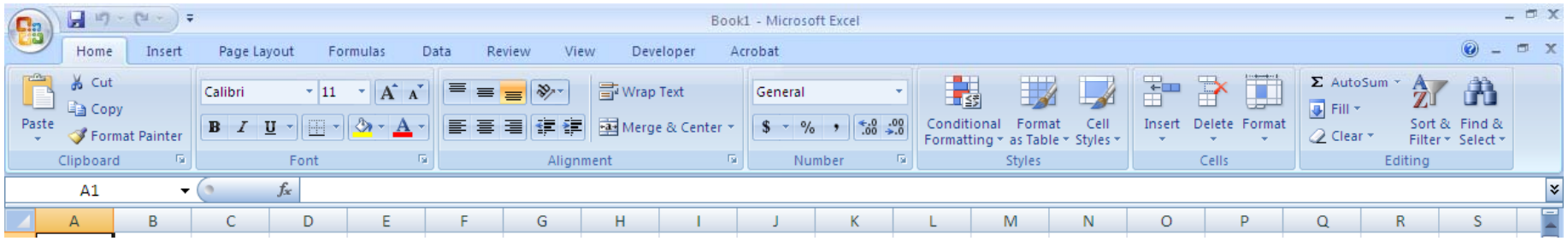
- Office Button
- Home Menu
- Insert Menu
- Page Layout Menu
- Formula Menu
- Data Menu
- View Menu

Office Button



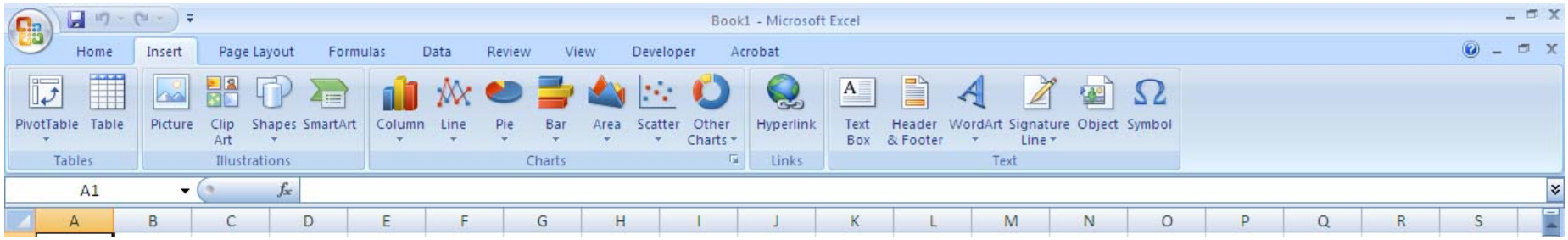
- New
- Open
- Save/Save As
  - Can select the type of file to save
- Print
  - Print Preview
- Recent Documents

Home Menu



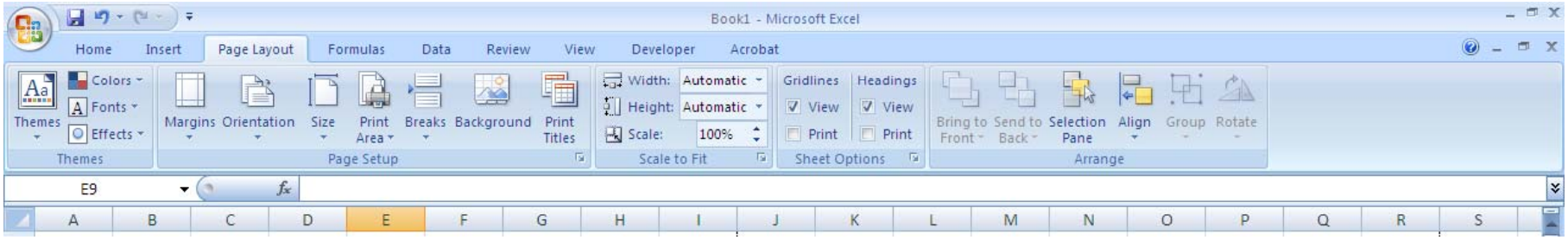
- Formatting
- Type of Number
  - $, %, Decimal Points
- Conditional Formatting
- Sort and Filter
- Find and Select

Insert Menu



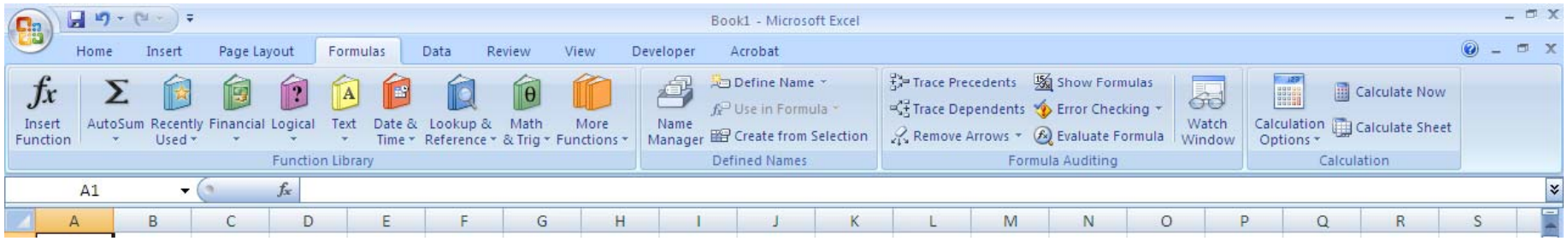
- Charts
- PivotTable

Page Layout Menu



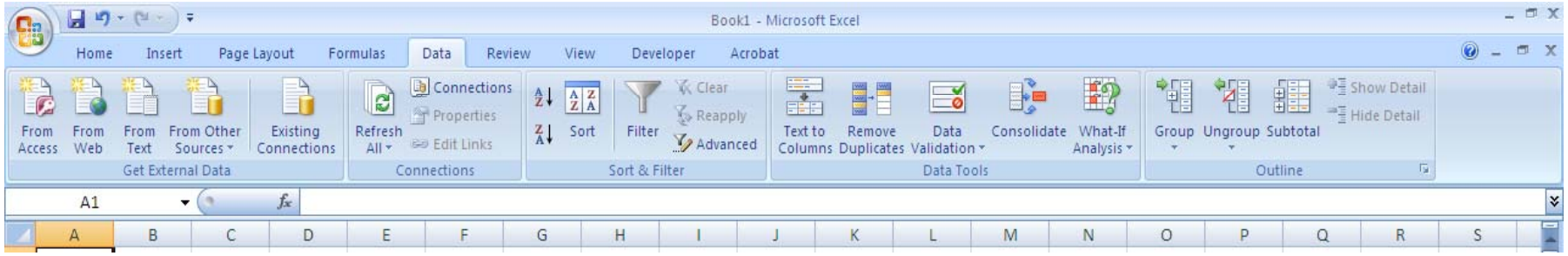
- Print Titles

Formulas Menu



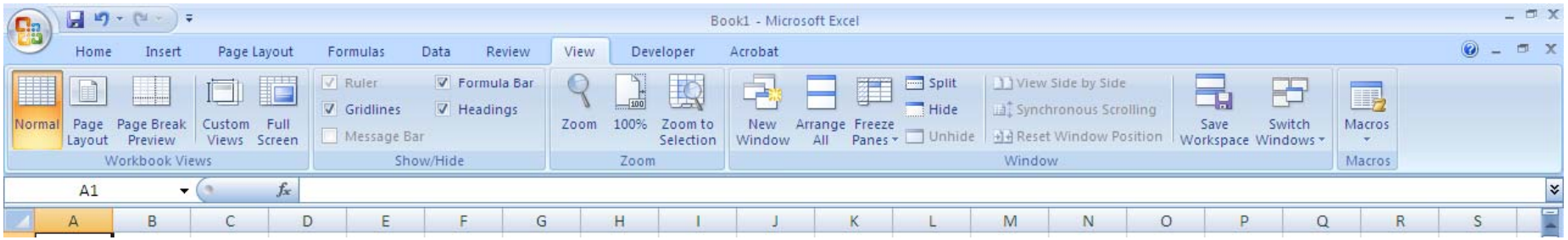
- Insert Function

Data Menu



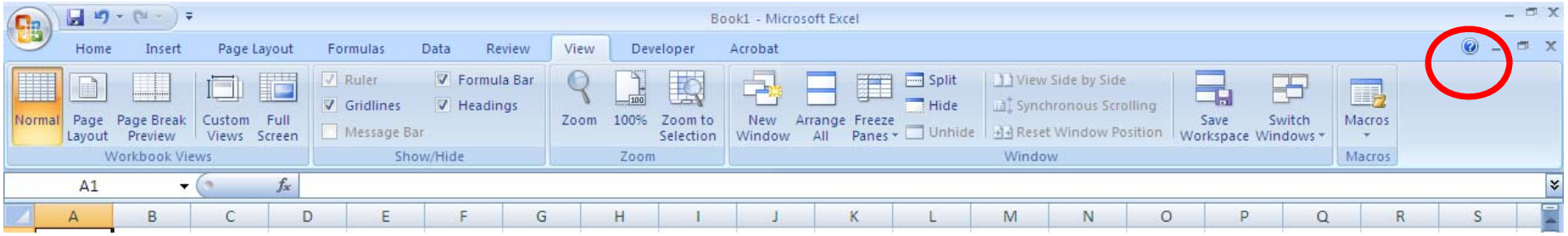
- Sort
- Filter
- Text to Columns
- Remove Duplicates
- What If Analysis
- Subtotal

View Menu



- Freeze Panes

Help Menu



- Can Search for help or use the Table of Contents
- Another good resource is the Internet
  - Example: Go to Google and type in what you are trying to accomplish
    - "How to sort in Excel"
  - Access various user forums and questions and answers

HANDS-ON EXERCISES

Sample Data

- In order to complete these hands-on exercises, you will need the Land.xls and OILGAS.txt files installed on your computer.
- These files contain sample data from actual Land and OILGAS files submitted to the State for review.
- While we are using these files in our examples, the functionality discussed could be used with other files created by you or generated by your CAMA system.

Freeze Panes

- Located on View Menu
- Freeze Top Row so Column Headings are always available
  - Ensure Column Headings are the top row of your spreadsheet
  - Go to View Menu
  - Select Freeze Panes
  - Select Freeze Top Row

Insert

- Insert Column between Depth Factor and Acreage Factor
  - Select Acreage Factor column
  - Right Click to access menu
  - Select Insert

Find

- Ctrl – F or on Home Menu (Binoculars)
- Find Land ID Number 149254738
  - Press Ctrl-F or press the Find button on the Home Menu
  - Type 149254738 in the Find What box
  - Select Find Next or hit Enter

Replace

- Located in same place as Find
- Ctrl – F or on Home Menu (Binoculars)
- Replace Year 2010 with Year 2011
  - Select Year column
  - Press Ctrl-F or press the Find button on the Home Menu
  - Go to second tab
  - Type 2010 in the Find What box
  - Type 2011 in the Replace With Box
  - Select Replace or Replace All

Sort

- Available on Home Menu and on Data Menu
- Sort by Land Lot Type Code
  - Select full data range
  - Select Custom Sort
  - Select LAND_LOT_TYPE_CODE in the Sort by dropdown box
    - If not seeing this as an option, you may need to check the box next to “My data has headers” to exempt the first row from the sort
  - Select order in which you would like it sorted
  - Hit OK

Filter

- Available on Home Menu and on Data Menu in same place as Sort
- Filter for Land Tot Type Code 91
  - Select Row 1
  - Go to Sort & Filter on Home Menu or to Filter on Data Menu
  - Select Filter
  - Go to drop down arrow on Land Lot Type Code Header
  - Uncheck all Land Lot Type Codes other than 91
  - Hit OK

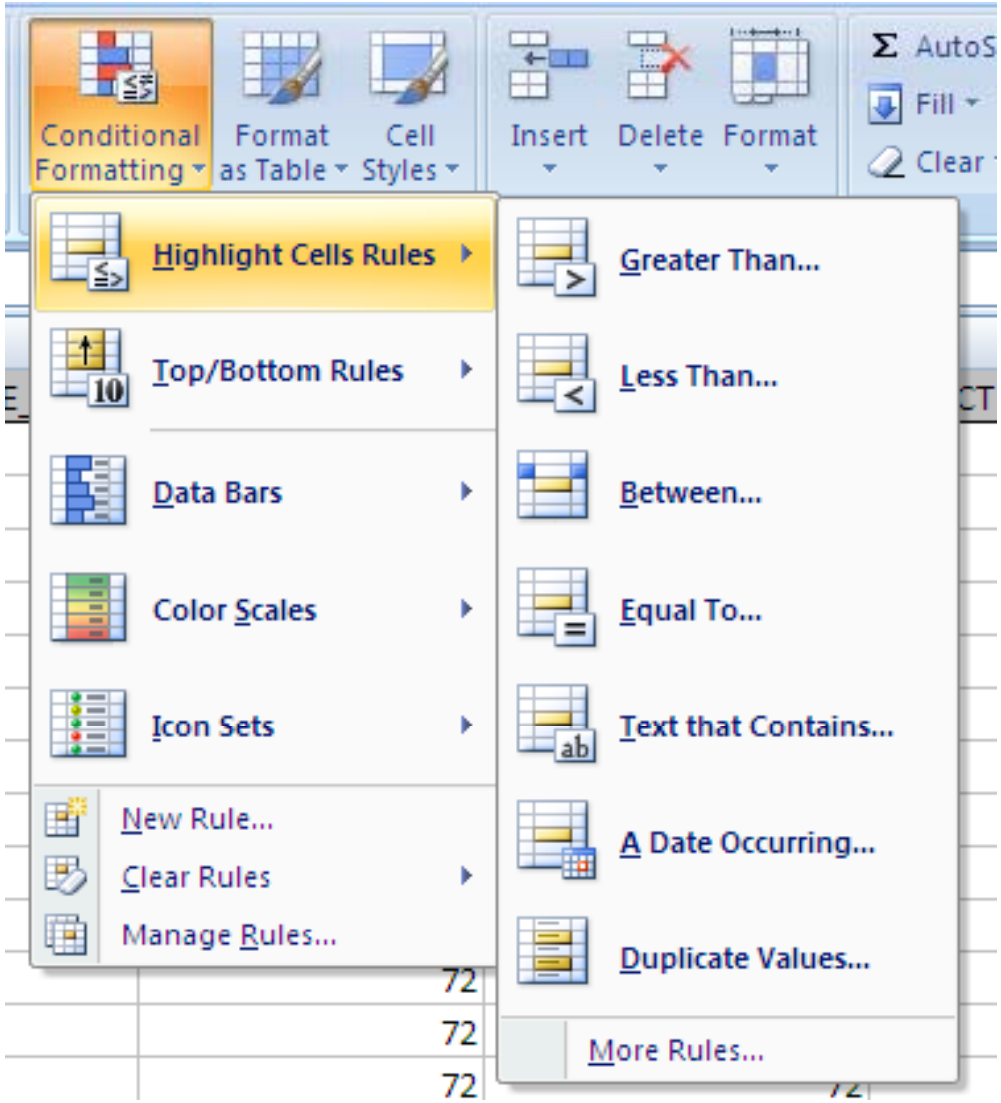
Clear Filter

- Available on Home Menu and on Data Menu in same place as Sort and Filter
- Clear filter from Land Lot Type Code column
  1. Go back to drop down box on top row of Land Lot Type Code
     a) Select All
     b) Clear Filter
  2. On Home Menu and Data Menu, option available for Clear

Conditional Formatting

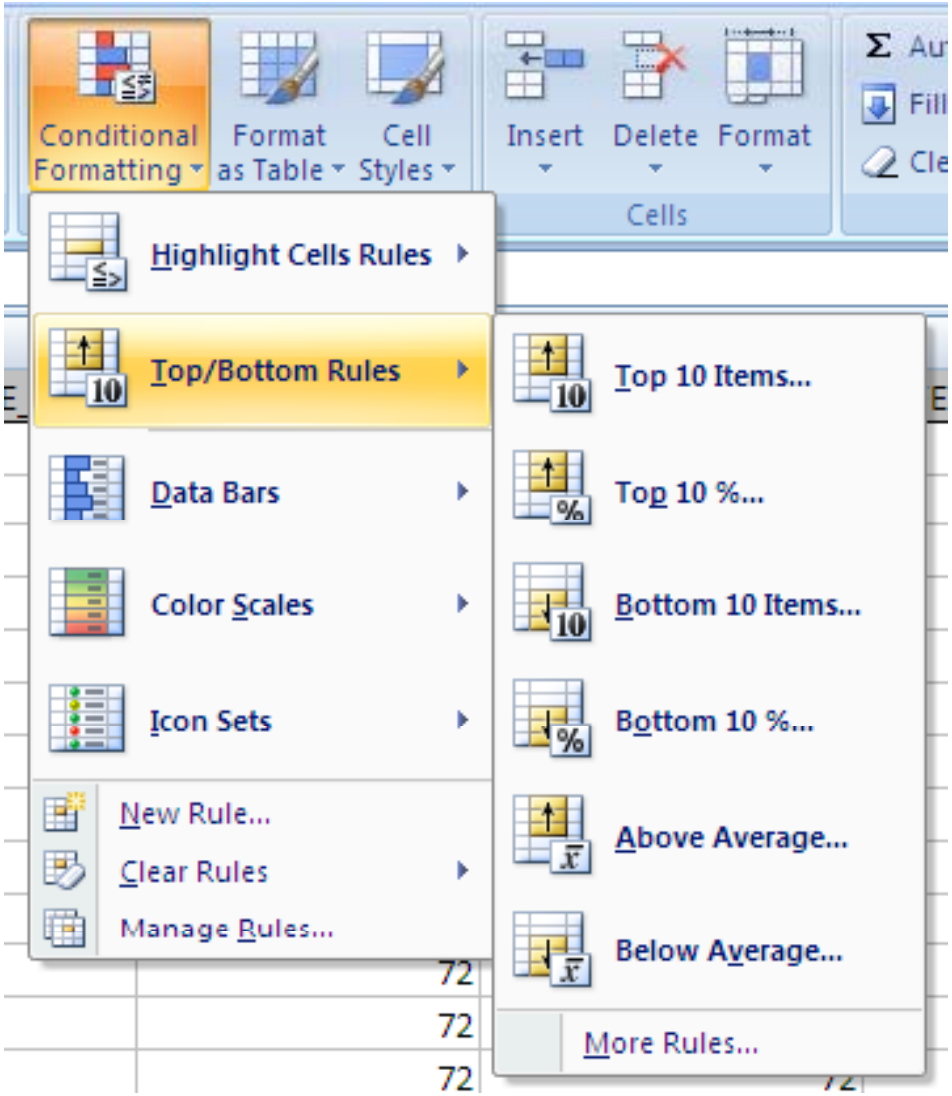
- Available on Home Menu
- Next few screens walk through pre-defined options
- You can also get more specific through New Rule or Manage Rule options

Conditional Formatting



- Greater Than…
- Less Than…
- Between…
- Equal To…
- Text that Contains…
- A Date Occurring…
- Duplicate Values…

Conditional Formatting



- Top 10 Items…
- Top 10%…
- Bottom 10 Items…
- Bottom 10%…
- Above Average…
- Below Average…

Conditional Formatting

- Highlight Duplicate Values in the Land ID Column
  - Select the Land ID Column
  - Go to Conditional Formatting
  - Select Highlight Cell Rules
  - Select Duplicate Values…
  - Can customize format of the rule
  - Hit OK
- To clear Conditional Formatting
  - Go to Conditional Formatting
  - Select Clear Rules
  - Select Clear Rules from Selected Cells or Clear Rules from Entire Sheet as applicable

Remove Duplicates

- Located on Data Menu
- Remove Duplicate Records
  - Select full data range
  - Select Remove Duplicates
  - Select which columns contain duplicates
    - To ensure the full record is an exact duplicate, select all columns
  - Hit OK

Functions

- Excel has a large number of built in functions.
- To use these pre-defined functions, you need to be cognizant of the specifics of the function:
  - What is the function designed to do
  - What cells need to be included in the calculation
  - What criteria must you specify for the calculation
  - In what order are these cells or criteria required to be entered
- Formula Dictionary on Formulas Menu
  - Insert Function

Functions

- Common Functions
  - SUM – Adds together selected values
  - MIN – Identifies the minimum value in selected range
  - MAX – Identifies the maximum value in selected range
  - AVERAGE – Calculates the average of selected values
  - ROUND – Rounds numbers to a particular decimal point precision
  - COUNT – Counts number of values in selected range
  - IF – Checks for the existence of the specified condition and returns different values if the condition is true or false
  - SUMIF – Adds values together if they meet a certain condition

Functions

- Sum Appraised Value for all records
  - Go to bottom of the Appraised Value column
  - In cell below data, type =SUM(
  - Specify range to be included in calculation
  - Close formula with an end parenthesis
  - Hit Enter
  - =SUM(L2:L202)
- Identify Minimum Value for Base Rate
  - Go to bottom of the Base Rate column
  - In cell below data, type =MIN(
  - Specify range to be included in calculation
  - Close formula with an end parenthesis
  - Hit Enter
  - =MIN(K2:K202)

Functions

- Identify Maximum Value for Acreage
  - Go to bottom of the Acreage column
  - In cell below data, type =MAX(
  - Specify range to be included in calculation
  - Close formula with an end parenthesis
  - Hit Enter
  - =MAX(M2:M202)
- Determine Average of Square Footage
  - Go to bottom of the Square Footage column
  - In cell below data, type =AVERAGE(
  - Specify range to be included in calculation
  - Close formula with an end parenthesis
  - Hit Enter
  - =AVERAGE(N2:N202)

Functions

- ROUND
  - Go to cell right below Average calculation
  - Type =ROUND(
  - Select cell to be rounded
  - Insert a comma
  - Identify decimal point precision
    - 0 = no decimals
    - 2 = two decimals
    - -2 = round to nearest 100
  - Close formula with an end parenthesis
  - Hit Enter
  - =ROUND(N204,0)

Functions

- Count the number of records with a Soil Productivity Factor
  - Go to bottom of the Soil Productivity column
  - In cell below data, type =COUNT(
  - Specify range to be included in calculation
  - Close formula with an end parenthesis
  - Hit Enter
  - =COUNT(P2:P202)

Functions

- Identify records with acreage greater than 1
  - Go to empty column – Column Z
  - Type =IF(
  - Define criteria
    - Acreage greater than 1
  - Insert comma
  - Insert value if true
  - Insert comma
  - Insert value if false
  - Close formula with an end parenthesis
  - Hit Enter
  - Drag or fill down formula down cell
  - =IF(M2>1,TRUE,FALSE)

Functions

- Sum appraised value if the acreage is greater than 1
  - Select an empty cell next to Column Z
  - Type =SUMIF(
  - Define range to be included in calculation
    - Column Z
  - Insert comma
  - Insert criteria
    - “TRUE”
  - Insert comma
  - Insert value to be summed
    - Appraised Value
  - Close with end parenthesis
  - Hit Enter
  - =SUMIF(Z2:Z202,"TRUE",L2:L202)

Functions

- Sum appraised value if the acreage is greater than 1
  - Select an empty cell next to Column Z
  - Type =SUMIF(
  - Define range to be included in calculation
    - Column Z
  - Insert comma
  - Insert criteria
    - “TRUE”
  - Insert comma
  - Insert value to be summed
    - Appraised Value
  - Close with end parenthesis
  - Hit Enter
  - =SUMIF(Z2:Z202,"TRUE",L2:L202)

Subtotal

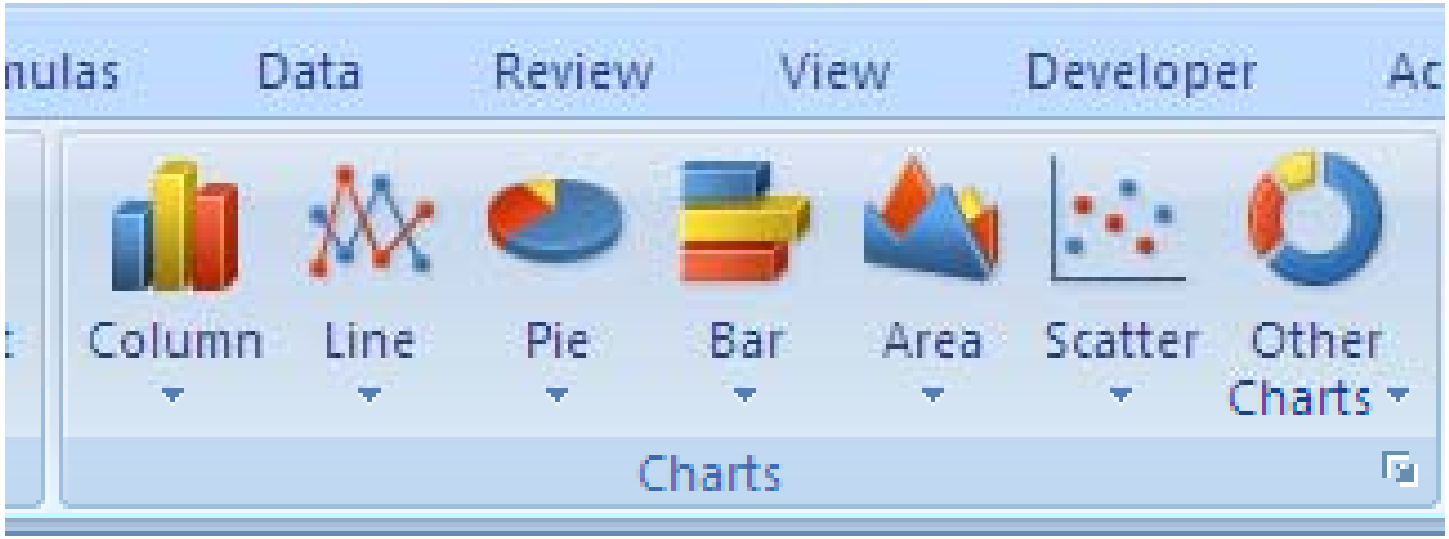
- Located on Data Menu
- Subtotal Appraised Value and Acreage by Parcel Number
  - Select full data range
  - Select Subtotal button on Data Menu
  - Select PARCEL NUMBER in drop down box for At Each Change In
  - Use Function SUM
  - Check Appraised Value and Acreage as columns to add subtotals to
  - Hit OK

Remove Subtotals

- Located on Data Menu
- Remove Subtotals
  - Select full data range
  - Select Subtotal button on Data Menu
  - Hit Remove All

Charts

- Excel provides a wide range of charting options on the Insert Menu.
  - Column Charts
  - Pie Charts
  - Bar Charts
  - Line Charts



Charts

- Design a column chart showing acreage by Land Lot Type
  - Create chart data
    - Copy (right click or Ctrl-C) Land Lot Type Code column and paste (right click or Ctrl-V) to Sheet 2
    - Remove duplicates (Data Menu)
    - Create SUMIF statements to add acreage by Land Lot Type Code
      - Can use permanent call references to create one formula and drag down
      - $ or F4
      - Determine what needs to be permanent in the formula
      - =SUMIF(Sheet1!$G$2:$G$202,Sheet2!$A2,Sheet1!$M$2:$M$202)

Charts

- Design a column chart showing acreage by Land Lot Type (continued)
  - Add Acreage heading on Sheet 2
  - Select chart data on Sheet 2
  - Go to Insert Menu
  - Select Column Chart – 2-D Column
  - Can use Design, Layout and Format menus specific to the Chart to change how the Chart is presented
    - Add Acreage totals to top of columns
  - Update chart title in chart directly
    - Acreage by Land Lot Type

Printing

- Before printing
  - Determine the purpose for your printing and try to arrange your data so you get the exact printout you need.
  - Print preview before printing to ensure the final printout will be useable.

Printing

- Print Preview
  - Customize size and layout of paper
  - Center on page
  - Add headers and footers
    - Title of worksheet
    - Page numbers
    - Prepared by
    - Any disclaimers or notes
- Page Layout Menu – Print Titles
  - Customize column or row headings to be repeated on each page during printing

Import Text File Into Excel

- Open a blank excel spreadsheet. Click the Office Button.
- Click on OPEN (or use the icon button)
- Navigate to where you saved the .txt file and open it.
- Highlight the filename you want to open and click OPEN.
- A TEXT IMPORT WIZARD box will open prompting you to select how you want the data to appear when viewed using excel.

Import Text File Into Excel

- The Wizard allows you to manage the break lines between your data.
- The Wizard allows you to choose column formats, provides data preview, and other advanced settings. When everything is organized, click on Finish.

Pivot Table

- Open your original spreadsheet and remove any blank rows or columns.
- Make sure each column has a heading, as it will be carried over to the Field List.
- Make sure your cells are properly formatted for their data type.
- Highlight your data range.

Pivot Table

- Click the **Insert** tab.
- Select the **PivotTable** button from the **Tables** group.
- Select **PivotTable** from the list.
- Double-check your **Table/Range**.
- Select the radio button for **New Worksheet**.
- Click **OK**.

Vlookup Function

- The syntax for the VLOOKUP function is:

  = VLOOKUP (lookup_value , table_array , col_index_num , range_lookup)

- **lookup _value:** The **value** you want to find in the first column of the table array.
- **table_array:** This is the table of **data** that VLOOKUP searches to find the information you are after.

  The table_array must contain at least two columns of data. The first column contains the lookup_values.
- **col_index_num:** The number of the column in the table_array that contains the data you want returned.

Contact the Department

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  - **"Contact Us": www.in.gov/dlgf/2338.htm.**