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Excel Basics

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What is a Spreadsheet?



A spreadsheet is the computer equivalent of a



paper ledger sheet or



List of data such as a roster of members

<i>paper ledger</i>	
<i>car loan</i>	<i>\$12,000</i>
<i>interest</i>	<i>9.6%</i>
<i># of payments</i>	<i>60</i>
<i>monthly payment</i>	<i>\$252.61</i>

	A	B	C
1	computer ledger		
2			
3		car loan	\$12,000.00
4		interest	9.60%
5		# of payments	60
6			
7		Monthly Pmt.	\$252.61






Worksheet – new name for Spreadsheet



Workbook – one file containing multiple worksheets. Suffix is .xls for Excel 2003 and .xlsx for Excel 2007 and beyond.



Common Spreadsheet Applications

-  Financial tracking and analysis
-  Database (mailing list, membership list, etc.)
-  Scientific and engineering calculations





Worksheet terminology

Columns Labels Values

Rows

	A	B	C	D	E
1	Expense(in\$)	Jan	Feb	Mar	Total
2	Mortgage	900	900	900	2700
3	Telephone	120	90	110	320
4	Gas	220	220	180	620
5	Insurance	60	60	60	180
6	Total	1300	1280	1250	3830

Cells

There are over 16 million cells per worksheet!

Columns: A – Z then AA, AB, etc

Rows: 1, 2, ...

An individual cell can hold up to 65,000 characters!



Cell Address

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

**Cell
C6**



Cell Data

Data type	Examples	Description
LABEL	Name or Wage or Days	Anything that is just text
NUMBER or VALUE or CONSTANT	5 or 3.75 or -7.4	any number
FORMULA	=b3+c3 or =c8*b5+a3	math calculation

Cells may also contain comments and formatting info



Components of the Excel window

Quick Access Toolbar

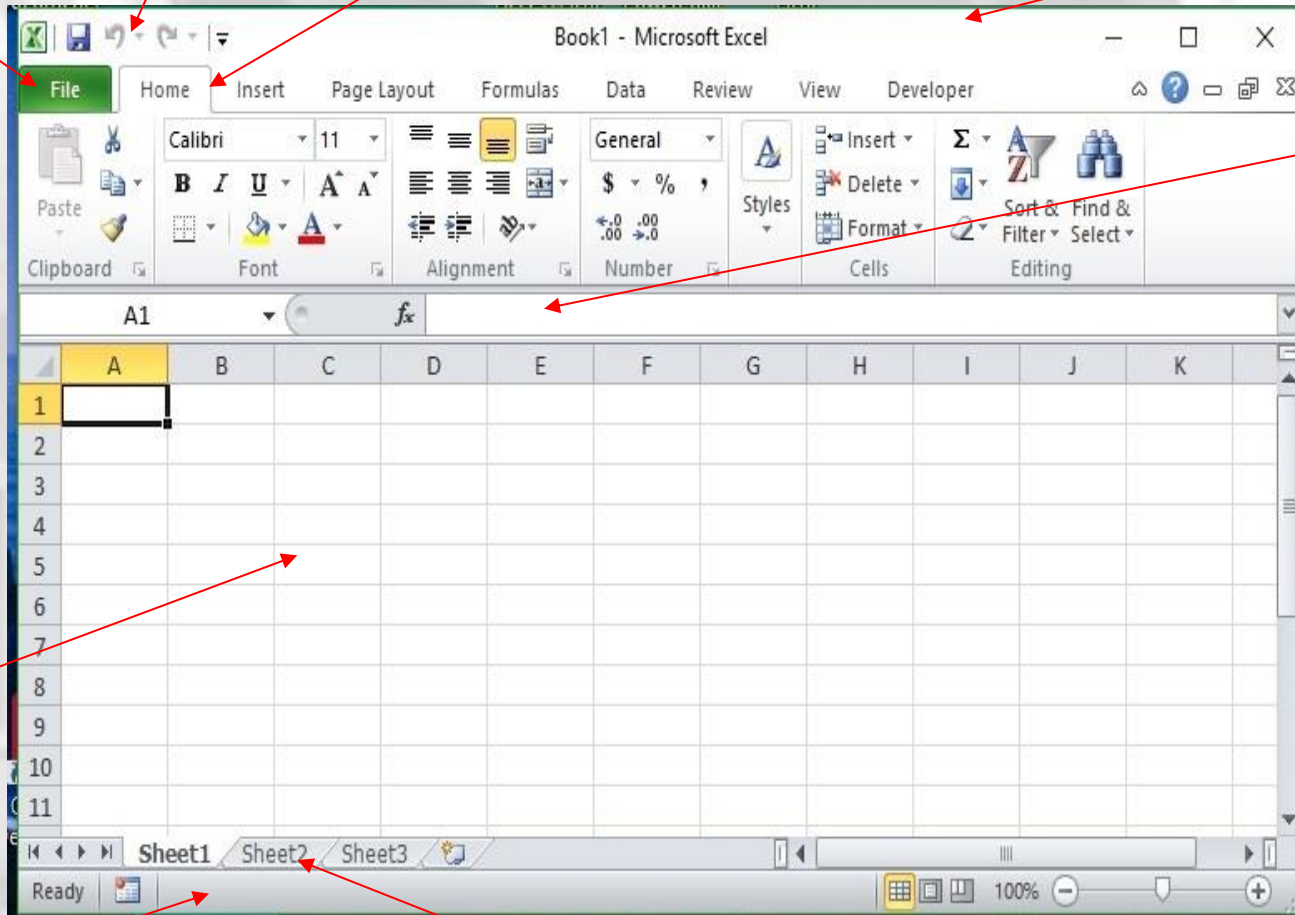
File Menu

Context Tabs

Title bar

Ribbon

Formula bar



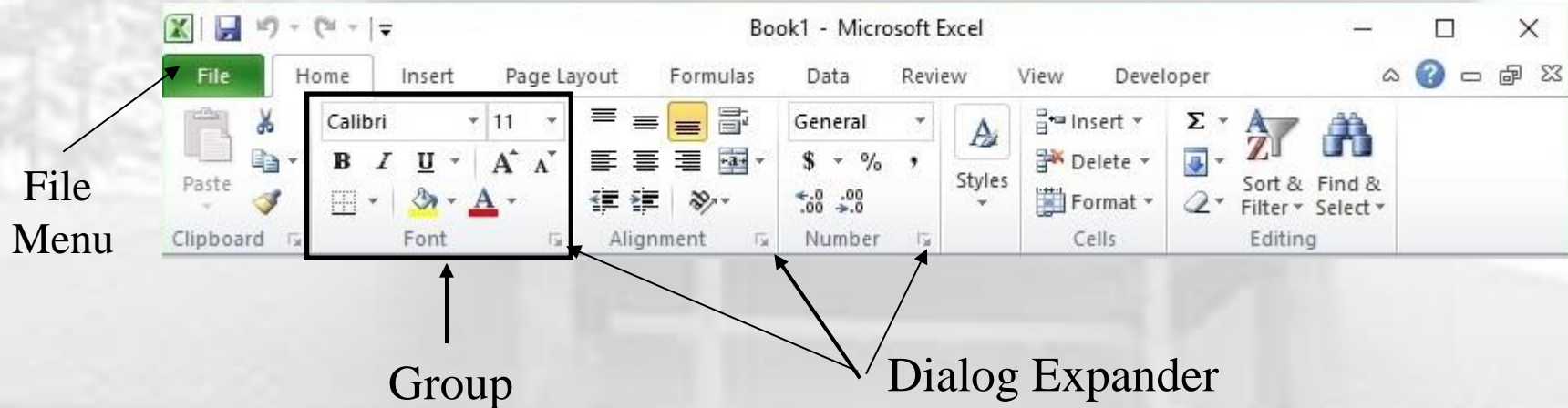
Active worksheet

Status bar

3 spreadsheets in workbook



Excel Ribbon



Ribbon commands are divided into 7 or more tabs



Each tab contains a series of groups



Each group has a series of related controls










Dialog Expander opens a related dialog box



File menu also contains commands





File Menu

-  **New** – open a new spreadsheet file
-  **Open** an existing spreadsheet file
-  **Recent** – open a spreadsheet that you have been using recently
-  **Save As** – new file name and/or location
-  **Save** an updated spreadsheet file
-  **Print** a spreadsheet (all or part)
-  **Close** the spreadsheet



Object / Action

 One of the basic principles of the Graphical User Interface is “object / action.” Select the object of interest and then choose the action to be taken on that object.

 In Excel, select the object (cells, row, column, text, etc.) and then right-click with the cursor over the object to bring up the shortcut menu listing the available actions.

 Left-click on the desired action.



Selecting Cells and Ranges



To select a:



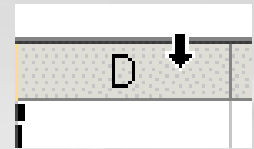
Single Cell – click on the cell



Single Row – click on the row number



Single Column – click on the column letter



To de-select:



Select something else



Selecting multiple Cells, Rows, Columns



Contiguous cells



Use the mouse and drag across cells

OR



Click the upper-left cell, press and hold
SHIFT, click the lower-right cell



Non-contiguous cells



Click the 1st cell



Press and hold CTRL






Click the remaining cells






Cell operations

-  You **enter data** when you type text or numbers or formulas into a cell. If a cell already has data, your typing overwrites the existing data.
-  You **edit data** when you make changes to existing data in a cell.
-  You **clear data** when the cell's contents are erased, but the cell itself is not deleted.



Data Types

 Labels can be letters and numbers or (‘) as first char before numbers (e.g., ‘2004)

 Numbers begin with a digit or +, -, ., \$

 Formulas begin with an =



Copying using the Fill handle

Fill handle is the small black square in the lower-right corner of the selection. When you point to the fill handle, the pointer changes to a black cross $+$



Fill handle

1. Select the cell(s)
2. Point to the fill handle; look for black cross
3. Drag the fill handle over the adjacent cells into which you want to copy the data





Example worksheet

The screenshot shows a Microsoft Excel window titled 'Textbooks 2.xls [Compatibility Mode] - Microsoft Excel'. The ribbon is set to 'Home'. The active cell is A1. The worksheet contains a table with the following data:

	A	B	C	D	E	F	G	H	I
1									
2			Textbook Order						
3									
4		Textbook	Quantity	Price	Extension				
5									
6		Biology	4	\$99.99	\$399.96				
7		Chemistry	2	\$79.95	\$159.90				
8		Calculus	7	\$65.99	\$461.93				
9		English	12	\$49.99	\$599.88				
10									
11				Subtotal	\$1,621.67				
12			6%	Sales tax	\$97.30				
13				Total	\$1,718.97				
14									





Formatting

You can format cell(s), row(s) & columns(s)

- Select the object(s) to be formatted
- Apply the format action from the **Font**, **Alignment** or **Number** group
- Additional actions available using the **Dialog Expander**
- You can also right-click over selection and pick **Format Cells** from the menu



Formulas in Excel



In Excel, we use formulas to perform calculations. For example,



Calculate totals and averages



Calculate percentage increase or decrease



Calculate sales tax or sales commission



Calculate interest to be earned






Calculate annuity payments



Calculate various scientific and engineering values



Formulas in Excel

-  Formulas are cell entries that have a mathematical statement which calculates the value to display.
-  We enter the formula into the cell; Excel calculates the result and displays the value in the cell.
-  This displayed result will be updated upon the change or entry of any data that is referenced in the equation.

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2			
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Formula Operations



The basic operations and their symbols are:

add + subtract - multiply * divide / power ^



Formulas follow the rules of algebra. Numbers can be positive or negative. There is a defined order of operations.



Formulas generally contain references to other cells in the spreadsheet. Formulas can also contain constants; for example, 10% or 3.14159



Order of operations

$$12 + 4 / 2 = ?$$

$$(12 + 4) / 2 = 8$$

$$12 + (4 / 2) = 14$$



Formula Examples

The equal sign is **required**.

=B3 * C14 Multiply the value in cell B3 by the value in C14

=D12 - B3 Subtract the value in cell B3 from the value in D12

=(A10 + B5) / C4 Add the values in cells A10 and B5 and then divide by the value in C4

=C7 + (C7 * 10%) Compute a 10 percent increase in the value contained in cell C7



Entering formulas

1. Select the cell where you want the result to appear
2. Type the formula beginning with = sign. Cell references can be lower case.

	A	B	C
1			
2	45		
3	66		
4	111		
5			

The image shows a spreadsheet interface. The active cell is A4, which contains the value 111. The Formula Bar above the spreadsheet shows the formula =A2+A3. The spreadsheet has columns A, B, and C, and rows 1 through 5. Cell A2 contains 45 and cell A3 contains 66.

The result is displayed in the cell. The formula is shown in the Formula Bar.



Moving & Copying Formulas



Formulas contain cell references, values, operators, and functions



Formulas can be moved or copied in the same way that you move or copy any other cell data



Excel ***does not*** change formulas that are ***moved*** (same calculation, but in a new location)



Excel ***may*** change formulas as they are ***copied*** into new cells (calculation changed to suit the new location)



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Create a Chart

- Select the data to appear on the chart
- Go to the **Insert** tab on the ribbon
- In the **Charts** group, select the type of chart to be created
- Use the **Chart Tools** to edit chart features

