

Microsoft Office Excel 2007

Using Excel To Manage Data

Welcome to Excel

- Excel is a computerized spreadsheet, which is an important tool that helps you report and analyze data. Uses include:
 - Business
 - Engineering
 - Education
- Excel stores spreadsheets in documents called workbooks.
- Each workbook is made up of individual worksheets.
- Because many types of calculations can be made in the Excel spreadsheet, it is much more flexible than paper or pocket calculator.

A sample Excel worksheet

Cash Forecast.xlsx - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Add-Ins

M35

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Cash Flow Comparison												
2	Actual versus Budget												
3													
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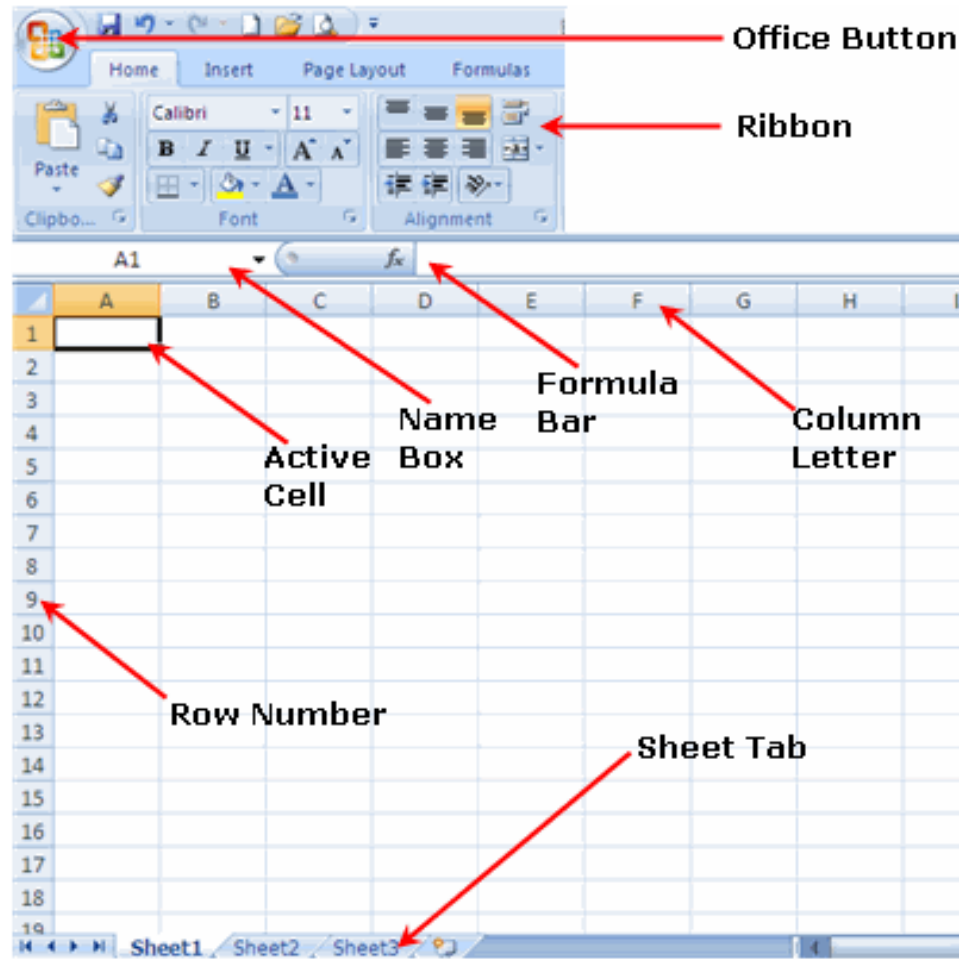
Sheet1 Sheet2 Sheet3

Ready 100%

Excel worksheets and workbooks

- When you set up calculations in a worksheet, if an entry is changed in a cell, the spreadsheet will automatically update any calculated values that were based on that entry.
- When you open Excel, by default it will open a blank workbook with three blank worksheets.
- When you save a workbook, you have a Save As option that can save the spreadsheet to earlier versions of Excel and even to a comma or tab-delimited text file.

Identify Excel components



The active cell

Cell reference for the active cell appears in the name box

Active column is highlighted

Active row is highlighted

Active cell

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									

Developing a worksheet

- Determine the worksheet's purpose.
- Enter the data and formulas.
- Test the worksheet and make any necessary edits / corrections.
- Document the worksheet and improve appearance.
- Note: save the worksheet often!

Entering data into a worksheet

- To enter data, first select the cell you want by “clicking on it”.
- Enter the data (text, formulas, dates, etc.) into the active cell. Be aware of data types and their properties!
- Use TAB key, arrow keys, or ENTER key to navigate among the cells.

Entering data into a worksheet (cont)

- Data types can be:
 - Numeric (numbers only)
 - Alphabetic (a single letter or strings)
 - Alphanumeric (letters and numbers together)
 - Dates (calendar) ← **Interesting critter**
- In addition to being a specific type, data can be:
 - A constant (value never changes)
 - A formula (arithmetic operations)
 - A function (simple or complex data operations)

Entering Formulas

- A formula is a mathematical expression that calculates a value.
- In Excel, formulas always begin with an equal sign (=).
- A formula can consist of one or more arithmetic operators.
- The order of precedence is a set of predefined rules that Excel follows to calculate a formula.

Arithmetic Operations

- + Addition
- - Subtraction (adding the inverse)
- * Multiplication
- / Division (multiplying by the reciprocal)
- ^ Exponent (powers)
- () operations in Parenthesis

Order of Precedence

- **Operations in Parenthesis done first**
- **Exponents done second**
- **Multiplication/Division done third**
- **Addition/Subtraction done last**
- These are performed from LEFT to RIGHT.

Order of Precedence Rules – Examples

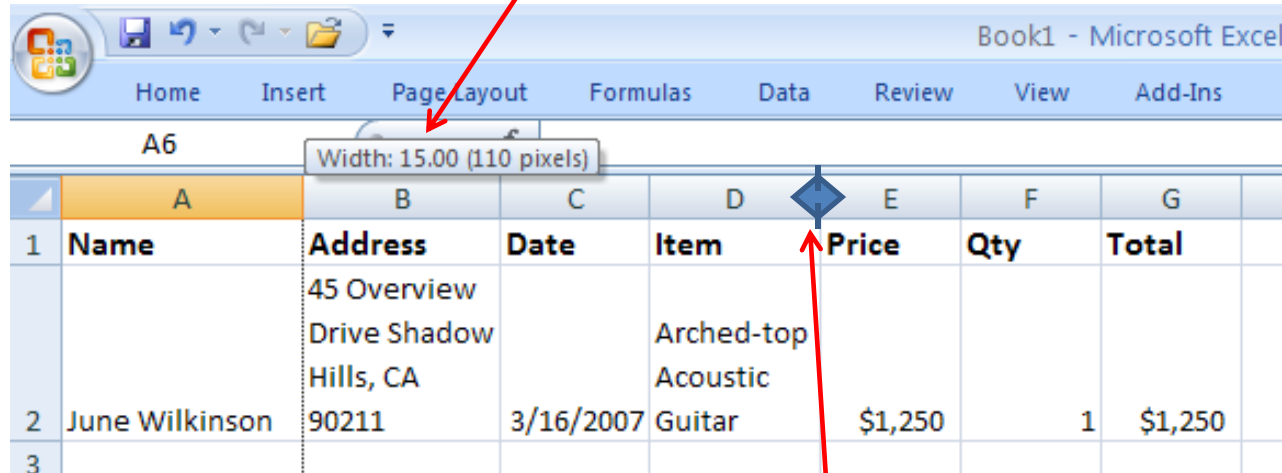
Formula (A1 = 50, B1 = 10, C1 = 5)	Order of precedence rule	Result
= A1+B1*C1	Multiplication before addition	100
= (A1+B1)*C1	Expression inside parentheses executed before expression outside	300
= A1/B1-C1	Division before subtraction	0
= A1/(B1-C1)	Expression inside parentheses executed before expression outside	10
= A1/B1*C1	Two operators at same precedence level, leftmost operator evaluated first	25
= A1/(B1*C1)	Expression inside parentheses executed before expression outside	1

Resizing worksheet rows and columns

- There are a number of methods for altering row height and column width using the mouse or menus:
 - Click the dividing line on the column or row, and drag the dividing line to change the width of the column or height of the row
 - Double-click the border of a column heading, and the column will increase in width to match the length of the longest entry in the column
- Widths are expressed either in terms of the number of characters or the number of screen pixels.

Resize a column

ScreenTip showing the width in characters and pixels



Pointer changes shape over the column dividing line

Select and move worksheet cells

- The movement of data - copying/cutting and pasting data - in Excel is similar to that of Word.
- Once you have selected a range of cells, you may move the cells within the worksheet by clicking and dragging the selection from its current location to a new one **OR** use Cut/Copy and Paste.

Select and move worksheet cells (cont)

- Data movement works fine for CONSTANTS and some functions
 - moving the value 10 from A1 to B30 is okay
 - moving the value “WVU” from B2 to D2 is okay
 - we’ll get to functions soon!
- But the rules for FORMULAS are different!
 - A10 * B12 is a formula
 - (C22 – E16) ^ Z4 is a formula

Use of relative cell references

- A relative reference is a cell reference that shifts when you copy/move it to a new location on a worksheet.
- A relative reference changes in relation to the change of location.
- If you copy a formula from cell B5 to cell G8, the relative reference would increase by 3 rows and 5 columns!

Use of absolute cell references

- An absolute reference is a cell reference that does not change when you move/copy the formula to a new location.
- To create an absolute reference, you preface the column and row designations with a dollar sign “\$” (without the quotes).
- For example, the absolute reference for cell B5 would be \$B\$5. This cell reference would stay the same no matter where you copied the formula.

Use of mixed cell references

- A mixed reference combines both relative and absolute cell references.

= \$B\$5 + C10 is a mixed reference

- You can effectively lock either the row or the column in a mixed reference.

= \$B\$5 + C10 - \$D1 + E\$12

Albert & Vodka

- Albert => Relative

A10 is RELATIVE

D34 is RELATIVE

- Vodka => Absolute

\$A10 is COLUMN absolute

B\$12 is ROW absolute

\$C\$18 is COLUMN and ROW absolute

ArE yOu CoNfUsEd?

- Cell D34 contains the formula
$$= A10 * C12$$
- When copied to E38 becomes
$$= B14 * D16$$
- Neither the mathematical operation NOR the order of operation makes a difference – they remain as exactly as they were entered!

ArE yOu CoNfUsEd? (cont)

- Cell A10 contains the formula

`=D$10 * C12`

- When copied to B11, it remains

`=D$10 * C12`

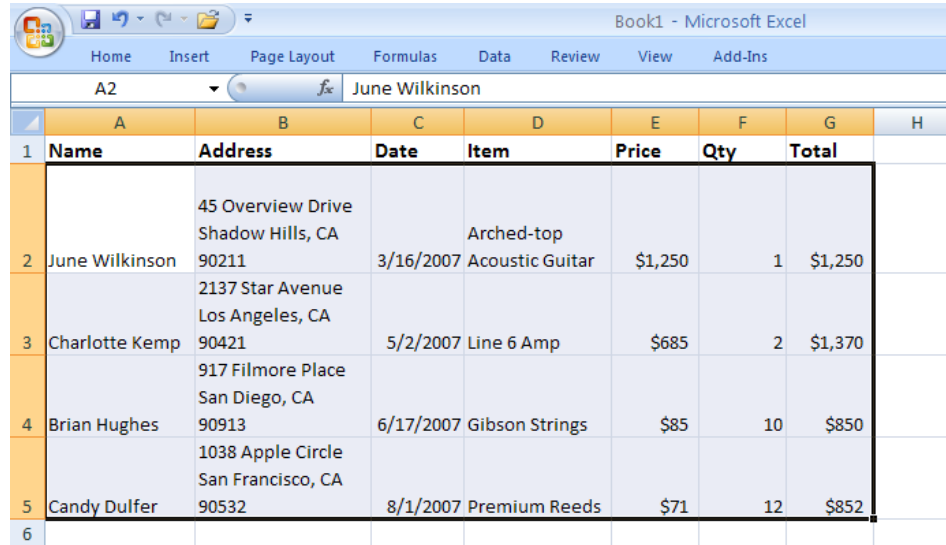
It's ALL absolutely simple when you learn the rules.
Or relatively confusing if you don't!

Identify cell ranges

- A group of worksheet cells is known as a cell range.
- Working with ranges in a worksheet makes working with the data easier.
- Ranges can be adjacent or nonadjacent.
 - An adjacent range is a single, rectangular block of cells
 - A nonadjacent range is comprised of two or more adjacent ranges that are not contiguous to each other

Adjacent and nonadjacent ranges

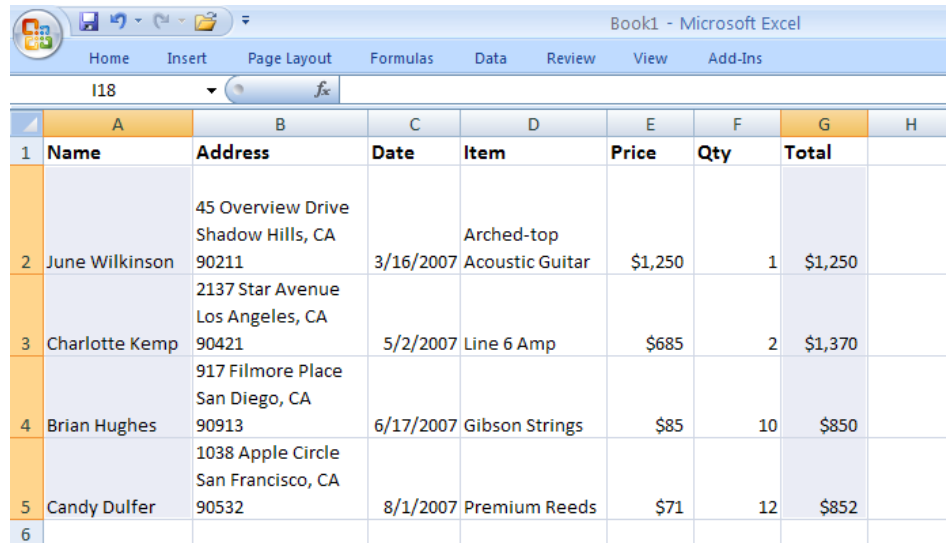
Adjacent range



The screenshot shows Microsoft Excel with a table of data. The active cell is A2, containing the name 'June Wilkinson'. A black border highlights a range of cells from A2 to G5, which includes the first five rows of the table. The table has columns for Name, Address, Date, Item, Price, Qty, and Total.

	A	B	C	D	E	F	G	H
1	Name	Address	Date	Item	Price	Qty	Total	
2	June Wilkinson	45 Overview Drive Shadow Hills, CA 90211	3/16/2007	Arched-top Acoustic Guitar	\$1,250	1	\$1,250	
3	Charlotte Kemp	2137 Star Avenue Los Angeles, CA 90421	5/2/2007	Line 6 Amp	\$685	2	\$1,370	
4	Brian Hughes	917 Filmore Place San Diego, CA 90913	6/17/2007	Gibson Strings	\$85	10	\$850	
5	Candy Dulfer	1038 Apple Circle San Francisco, CA 90532	8/1/2007	Premium Reeds	\$71	12	\$852	
6								

Nonadjacent range

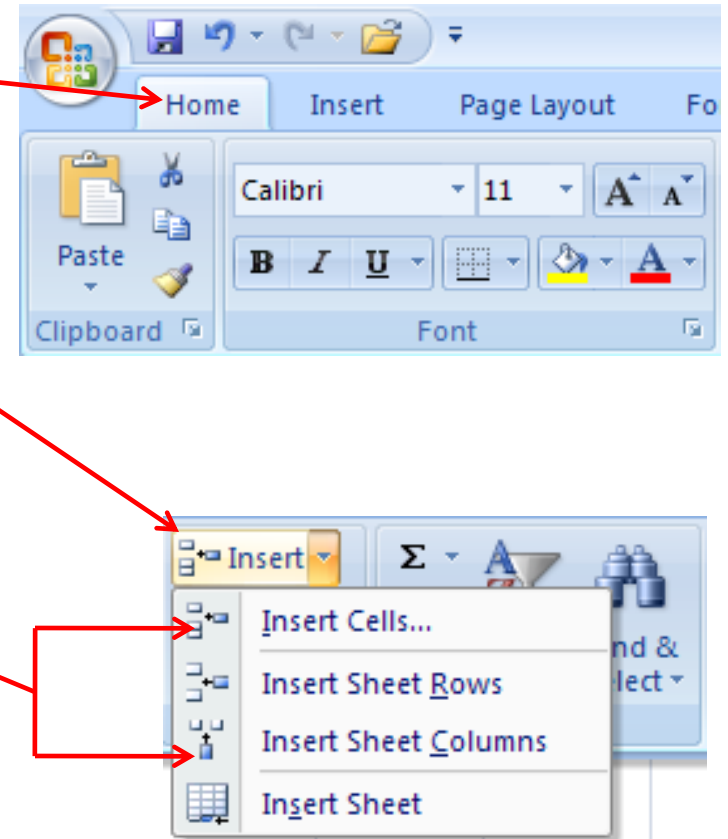


The screenshot shows the same Microsoft Excel table as above. The active cell is I18. A black border highlights a nonadjacent range of cells: A2, B2, C2, D2, E2, F2, G2, A3, B3, C3, D3, E3, F3, G3, A4, B4, C4, D4, E4, F4, G4, A5, B5, C5, D5, E5, F5, G5. This range includes the first five rows of the table, but only the first seven columns (A through G).

	A	B	C	D	E	F	G	H
1	Name	Address	Date	Item	Price	Qty	Total	
2	June Wilkinson	45 Overview Drive Shadow Hills, CA 90211	3/16/2007	Arched-top Acoustic Guitar	\$1,250	1	\$1,250	
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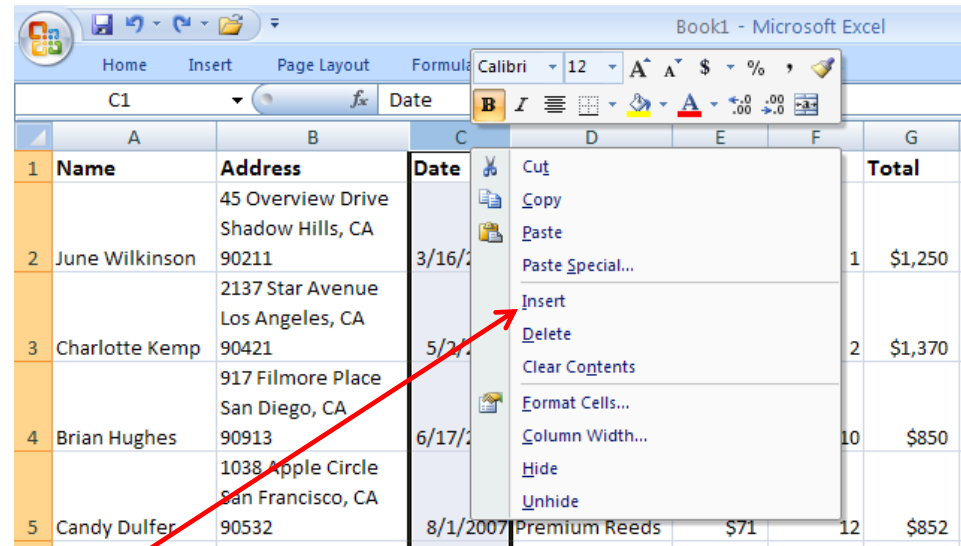
Insert cells, rows and columns

- From the Home tab, click on the Insert option and then select cell, row or column.
- FYI – deleting cells, rows, and columns can be done by selecting “delete” instead of “insert” from the ribbon.



Insert cells, rows, and columns (cont)

- An easier method to inserting rows or columns can be accomplished by selecting the row number or column letter; “right clicking” the mouse; then selecting “Insert.”



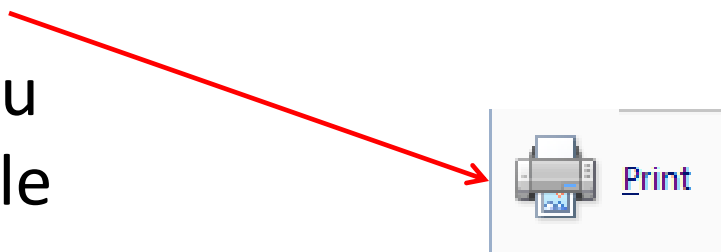
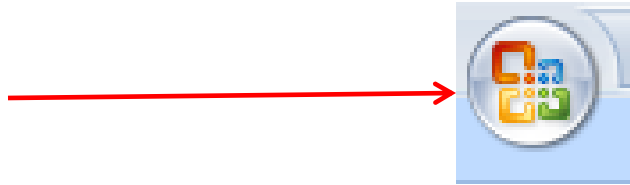
New rows and columns are inserted BEFORE the position you selected!

And now a word on deletion

- To delete cells, rows, and/or columns, you must use an method that clearly specifies the word DELETE (either from the mouse short-cut or from the menu ribbon).
- Clearing, as opposed to deleting, does not alter the structure of the worksheet or shift uncleared data cells (aka pressing the delete key on the keyboard).
 - It merely removes the value within the cell and not the cell reference

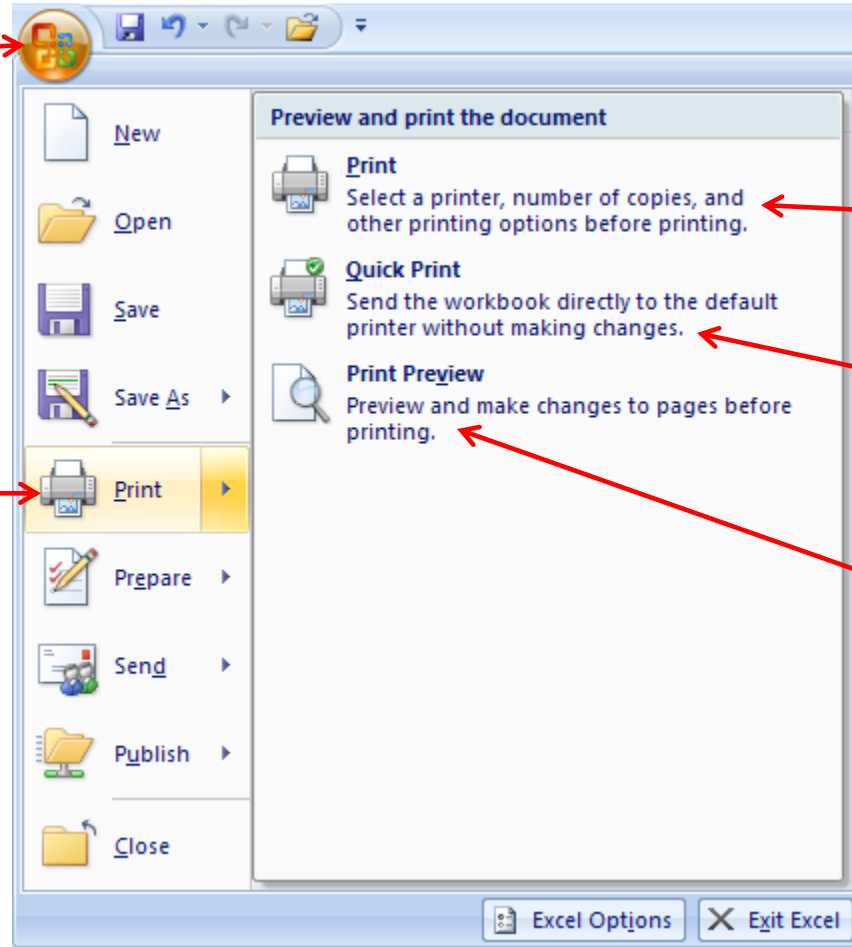
Printing your work

- To Print a worksheet you press the Office Button first, and then select “Print” option icon ... but before you do, you should double check your work!



The Print dialog box

Press here



Select print

Options!

Print the current worksheet

Look before you print

Questions?

