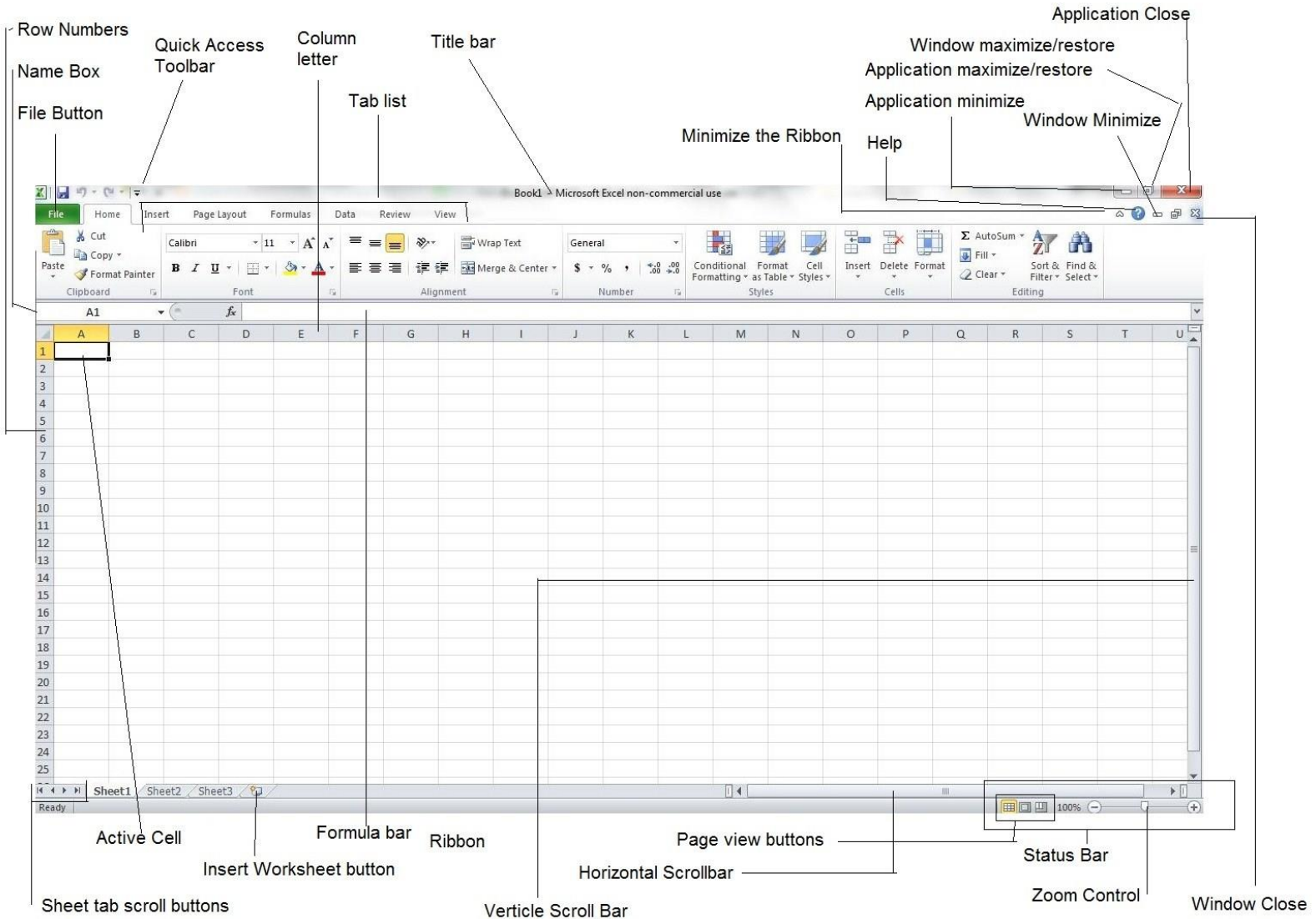


SPREADSHEET SOFTWARE

Spreadsheet software refers to Application software packages that are used for calculations, including the creation of graphs.

Examples of spreadsheet software applications include: Microsoft Excel, Lotus 1-2-3, KSpread, Apple Numbers, OpenOffice.org Calc, Kingsoft Spreadsheets, Quattro Pro, Ability Spreadsheet, etc.

WORKING WITH THE MICROSOFT EXCEL WINDOW



Active cell / Selected cell - An active is the cell you are currently working on. The cell with a thick outline.

Cell Reference - The column letter and the row number of a cell

A formula must always start with "=" sign and what the calculations for each cell

Grid Lines - The horizontal and vertical lines on the spreadsheet

Sheet tabs - Tabs that identify the worksheets in a workbook

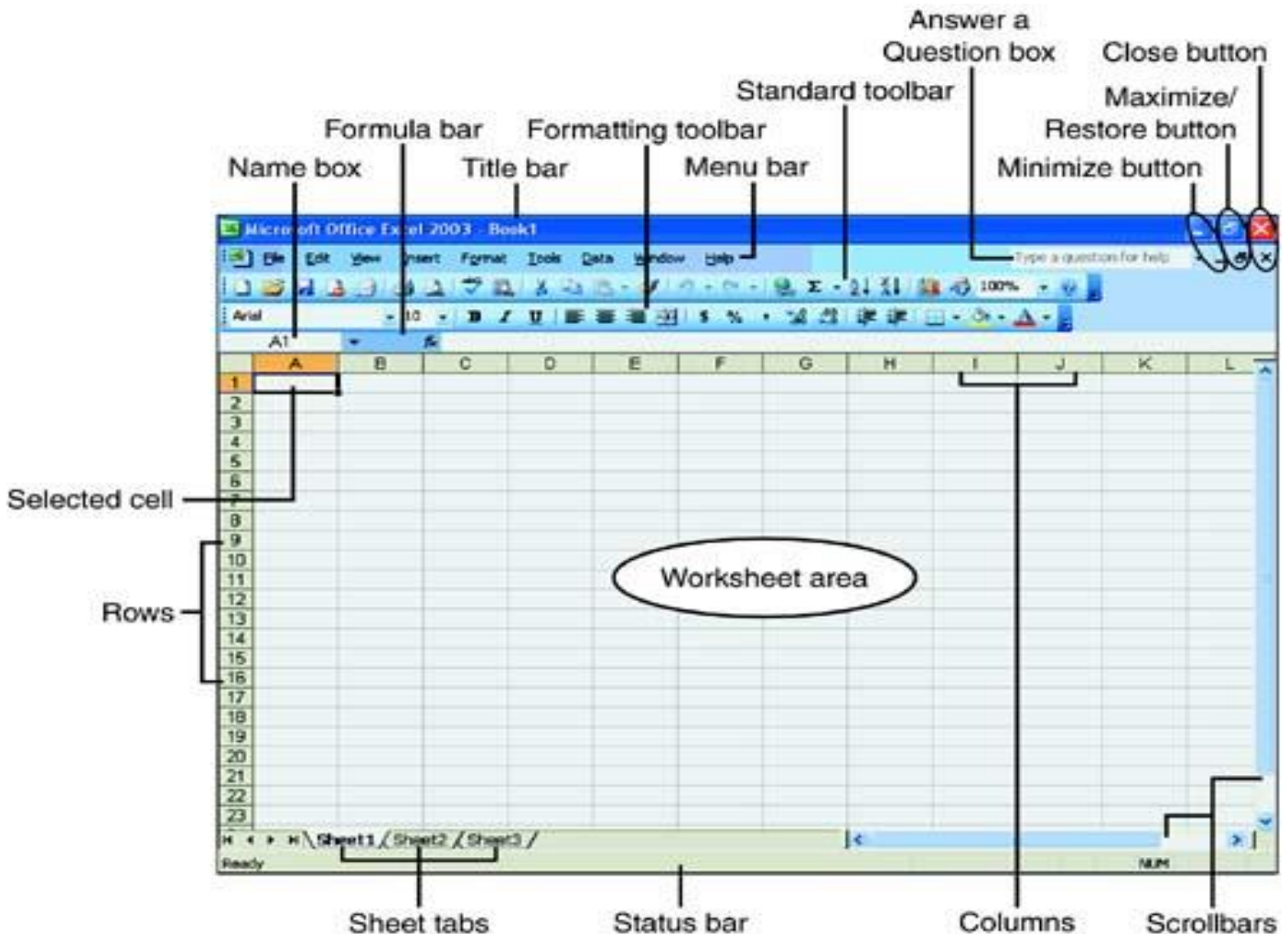
Spreadsheets - a grid that organizes data in rows and columns.

Value - A number that can be entered into a cell

Workbook - A group of many worksheets

Worksheet - One page of a spreadsheet that contains up to 65,536 rows and 256 columns

Name Box - The Name Box is located next to the formula bar above the worksheet area. The Name Box displays the cell reference of the active cell.



1. Toolbars are located at the top under the main Menu bar
2. Formula Bar is located under the toolbars
3. A single "grid", or page, is usually referred to as a worksheet. The current worksheet is the main area of the window
4. Task pane is the panel to the right of the worksheet.
5. Status bar is located at the bottom of the window
6. Columns - The vertical segments that you see on the spreadsheet are called columns.
7. Rows - The horizontal segments are referred to as rows.
8. Cells - Each box that is created from a row and column intersecting is referred to as a cell.
9. Scroll bars – A worksheet is too large. Scroll bars are used to roll or navigate to other parts of the worksheet that are not visible.

DATA TYPES THAT CAN BE ENTERED INTO A SPREADSHEET CELL

- A cell may contain (i) labels or (ii) values.
- A label is a text entry, such as TOTAL, that cannot be numerically manipulated by the spreadsheet.
- A value can be a number, a date, the answer of a formula, currency, time, percentage, fraction, a logical value, error value e.t.c.
 - If the ##### symbols appear in the cell, it means that the column is not wide enough.

ERRORS IN SPREADSHEET CELLS

If you create a formula in Excel that contains an error or circular reference, Excel lets you know about it with error messages below.

Error	Meaning
#DIV/0!	Trying to divide by 0
#N/A!	A formula or a function inside a formula cannot find the referenced data
#NAME?	Text in the formula is not recognized
#NULL!	A space was used in formulas that reference multiple ranges; a comma separates range references
#NUM!	A formula has invalid numeric data for the type of operation
#REF!	A reference is invalid
#VALUE!	The wrong type of operand or function argument is used
#####	it means that the column is not wide enough

ADVANTAGES OF USING ELECTRONIC SPREADSHEETS OVER MANUAL SPREADSHEETS

1. It is Easy to make changes and corrections (**to edit**) data on the worksheet.
2. Electronic spreadsheets can **quickly perform** mathematical, statistical, and financial calculations.
3. The rest of the worksheet is **recalculated** whenever data in one place changes.
4. Spreadsheets have in-built **functions** and macros which make work easy.
5. Calculations are always **accurate**, provided that the data and formulae entered are correct.
6. They offer different options of data presentation by using charting tools such as pie charts, bar graphs, etc.
7. They are very useful for applications that require modeling and **what-if analysis**. When you revise the contents of one or more cells in a worksheet and observe the effect this change has on all the other cells, you are performing a what-if analysis.
8. They easily filter, sort, and arrange data in alphabetical order for better organization.
 1. Workbooks can be saved in **soft copies** that can be easily modified and reused in future.
 2. Electronic spreadsheets are much larger than manual worksheets. They are not limited by paper size like in manual workbooks.

DISADVANTAGES (DEMERITS) OF USING ELECTRONIC SPREADSHEETS

1. Electronic spreadsheets require special software and hardware which is **expensive**.
2. Spreadsheets require enough time for **training** and practicing before use.
3. There is a lot of **complexity** surrounding formulas, functions and their arguments.
4. Computers can get system errors, and **virus infections**. These problems also can lead total loss of data.
5. Electronic spreadsheets cannot be used in areas **without Electricity**.
6. There is Difficulty in **finding Data Mistakes** since Electronic spreadsheets have many fields, making it look like a screen full of small boxes.
7. **Difficult printing**: Obtaining hard copies becomes very hard especially when the worksheets are too wide as compared to the available page sizes.

FEATURES OF A SPREADSHEET APPLICATIONS

1. Saving. Saving enables a user to create a file for the workbook in a directory on the disk. The Save command can be accessed from the File menu. NB: **The file extension of an Excel document is .xls**

2. Columns and Rows. A spreadsheet is a grid consisting of columns and rows. Rows are labeled with numbers, and columns are labeled with letters, giving each cell a unique address consisting of a number and a letter.

3. Auto Complete feature. The AutoComplete can speed up data entry, especially if you have to enter a particular word or phrase repeatedly. When you start entering data into an empty cell, directly below an existing list, Excel will automatically offer you a match from the data above it.

4. Formulas. Formulas are used to express mathematical relationships between cells. For example, $C1=A1+B1$ would add and display the sum of cells A1 and B1 into cell C1. It could also be a simple mathematical formula, such as $(100 * 3) / 40$. Formulas are not displayed on spreadsheets. What you see in the cell is the result of the formula. Don't forget about order of operations (BEDMAS); anything inside parenthesis happens first, followed by Exponent (^) Division (/) multiplication (*), followed by addition (+) and subtraction(-).

5. Functions. Functions are used as shortcuts when performing mathematical calculations. Functions are pre-programmed formulae that give power and flexibility to spreadsheet calculations. They prevent the user from having to continually enter long and cumbersome formula expressions. They constitute standard keywords and syntax. Some examples are SUM, AVERAGE, MAX, and MIN.

6. Cell References / Addresses. You can refer to a Cell by using the Column letter and Row number. For Example, D8 refers to a cell in Column D and Row 8. In this case, D8 is known as the Cell Reference and is also used as the default name for the cell. A **Circular reference** occurs when a formula refers back to its own cell. For example inserting the formula $=A2+A3$ in cell A2 creates a circular reference.

RELATIVE, ABSOLUTE and MIXED CELL REFERENCES

RELATIVE REFERENCE: a relative reference is a cell address that changes when it is copied to other

cells in a spreadsheet. This is because it is based on the relative position of the cell.

Example: If in the cell C3 we have the formula $=A1+B2$, and we copy the formula to cell E8, then it would automatically adjust to $=C6+D7$.

ABSOLUTE REFERENCE: An absolute cell reference is a cell address that does not change when it is copied to other cells in the spreadsheet. Absolute references always refer to cells in a specific location. To make a cell address absolute, we insert the dollar symbol \$ before the letter that identifies the column and before the number that identifies the row, example B1 becomes \$B\$1. If you copy the formula across rows or down columns, the absolute reference does not adjust. Example:

Example: If in the cell C3 we have the formula $=\$A\$1+\$B\2 , and we copy the formula to cell E8, then it would remain the same $=\$A\$1+\$B\2 .

MIXED REFERENCE: is when you have either: an absolute column and a relative row e.g.\$B1 or a relative column and an absolute row e.g. B\$4. And if the cell address is copied to other cells, the relative argument changes and the absolute part does not change.

Example: If in the cell C3 we have the formula $=\$A1+B\2 , and we copy the formula to cell E8, then it would automatically adjust to $=\$A6+D\2

Note: An easy way to add the dollar signs to a cell reference is to edit a cell reference and then press the F4 key on the keyboard.

7. Ranges. A range is a combination of two or more adjacent cells in a worksheet

1. You can refer to a range by using the cell reference of the top – left and bottom- right cells.
2. For example, B2:D8 defines the rectangular range bound at the top left by the cell B2 and at the bottom – right by the cell D8

8. Custom names for cells and ranges. Identifying a particular cell (or range of cells) is made easier when it is given a unique name. Names are easier to remember than default cell references since they can be specific to the task being worked upon

3. Names make it easier to change the structure of the sheet.

4. Named cells/ranges can be referred to from other sheets easily.
5. It is easy to go to a named range or cell using F5.

9. Graphs and charts. A Graph or Chart is a graphical representation of Data in a spreadsheet. These graphics, which illustrate the meaning of the numbers in the spreadsheet in different ways, can be used to stimulate interest and help make a point.

- There are several different types of graphs that can be made. Area graphs, bar and column graphs, line graphs, pie charts, scatter plot diagrams and 3-D graphs are some examples.

Other Features

10. Multiple worksheets
11. Inserting/deleting columns and rows
12. Cell formats (Numbers, Strings, Currencies, Dates, Times)
13. Cell merging (rows and columns)
14. Cell locking
15. Custom styles for columns, rows and column groups
16. Delete text: Allows you to erase characters, words, charts, or worksheets as easily as you can cross them out on paper.
17. Cut and Paste: Allows you to remove (cut) a section of text from one place in a spreadsheet and insert (paste) it somewhere else.

18. Copy: Allows you to duplicate a section of text.
19. Search and Replace: Allows you to direct the spreadsheet to search for a particular word or phrase. You can also direct the spreadsheet application to replace one group of characters with another everywhere that the first group appears.
20. Headers, Footers, & Page Numbering: Allows you to specify customized headers and footers that the spreadsheet file will put at the top and bottom of every worksheet. The spreadsheet automatically keeps track of page numbers so that the correct number appears on each page.
21. Spell Checker: A utility that allows you to check the spelling of words in a spreadsheet file.
22. Print: Allows you to send a spreadsheet file to a printer to get a hardcopy or many hardcopies as you would like.
23. Graphics: The spreadsheet application permits the addition of various types of graphics, such as bar charts, line charts, clip art, and photographs.
24. Data Sort
25. Macros – Allow a user to record or save a sequence of keystrokes or instructions that can be run later.
26. Recalculation
27. Zooming Worksheet view
28. Alignment, Wrap Text, etc.

Excel Common Functions Checklist

FUNCTION NAME	FUNCTION SYNTAX	FUNCTION DESCRIPTION
AVERAGE	=AVERAGE(C1:C4)	Find the average (mean) of a list of numbers.
CONCATENATE	=CONCATENATE(B1,B2)	Joins contents of cells together
CONVERT	=CONVERT(68, "F", "C")	Converts 68 degrees Fahrenheit to Celsius (20)
COUNT	=COUNT(B4:B12)	Counts the number of cells which have a number in them
COUNTBLANK	=COUNTBLANK(B7:B13)	Counts the number of empty cells
COUNTIF	=COUNTIF(B2:B6,12)	Counts the number of cells which have a 12 in them
DEC2BIN	=DEC2BIN("19")	Converts a decimal number 19 to binary
HEX2OCT	=HEX2OCT("3B4E")	Converts hexadecimal 3B4E to octal
IF	=IF(logical_test, [value_if_true], [value_if_false]) e.g. =IF(A2<=50,"PROMOTED","CHOPPED")	Records PROMOTED if the number in cell A2 is less than or equal to 50 Otherwise, the function displays CHOPPED
INT	=INT(B1)	Records the whole number part of a number e.g 3.15 becomes Integer 3
LARGE	=LARGE(B3:B13,2)	Gives the 2 nd largest number
LOG	=LOG(8, 2)	Returns the Logarithm of 8 with base 2
LOWER	=LOWER(A2)	Converts text string to Lower case
MAX	=MAX(A2:A6)	Largest of the numbers in the range A2:A6
MEDIAN	=MEDIAN(A2:A6)	Median of all the numbers in the range A2:A6
MIN	=MIN(A2:A6)	Smallest of the numbers in the range A2:A6
MODE	=MODE(A2:A6)	Returns the commonest or most frequently occurring number in the range A2:A6
NOW	=NOW()	Returns the serial number of the current date and time
OCT2BIN	=OCT2BIN(67)	Converts an octal number 67 to binary
POWER	=POWER(2,4)	Returns 2 raised to the power of 4 i.e 2x2x2x2=16
PRODUCT	=PRODUCT(A2:A4)	Multiplies the numbers in cells A2 through A4.
PROPER	=PROPER(A2)	Proper case of first string (this is a TITLE =This Is A Title)
RANK	=RANK(NUMBER,REF,[ORDER]) e.g. =RANK(A3,A2:A6,1)	Gives the Rank (Position) of A3 out of the values in the range A2:A6, in ascending order
ROMAN	=ROMAN(B2)	Converts the value in cell B2 to roman numerals
ROUND	=ROUND(B3,2)	Rounds value in B3 to 2 decimal places
ROUND	=ROUND(2.15, 1)	Rounds 2.15 to one decimal place
SMALL	=SMALL(B3:B13,2)	Gives the 2 nd smallest number
SQRT	=SQRT(16)	Square root of 16
SUM	=SUM(C1:C4)	Adds a list of numbers
TODAY	=TODAY()	Returns the current date.
UPPER	=UPPER(A2)	Converts text to Upper Case (CAPITAL LETTERS)

COMMON SPREADSHEET KEYBOARD SHORTCUTS

Home	To the first cell in the current row
Ctrl + Home	To the first cell in the current sheet
Ctrl + End	To the last cell containing data
Page Up	One screen up
Page Down	One screen down
Alt + PgUp	One screen to the left
Alt + PgDown	One screen to the right
F5 or Ctrl + G	Display Go to Dialogue Box
Ctrl + F4	Close Workbook
Alt + F4	Exit Application
Shift + F11	New Workbook
Ctrl + Semicolon (;)	Enter Current Date
Ctrl + Shift +Enter	Fill a range of cells with same data
TAB	Moves one cell to the right in a worksheet.
ESC	Cancels an entry in the cell or Formula Bar.
F1	Displays Help
F2	Edits the active cell and positions the insertion point at the end of the cell contents.
F5	Displays the Go To dialog box
F6	Switches between the worksheet, ribbon, task pane, and Zoom controls.
F7	Displays the Spelling dialog box to check spelling in the active worksheet or selected range.
F8	Turns extend selection mode on or off.
F9	Re Calculates all worksheets in all open workbooks.
F11	Creates a chart of the data in the current range in a separate Chart sheet.
F10	Turns key tips on or off. (Pressing ALT does the same thing.) CTRL+F10 maximizes or restores the selected workbook window.
F12	Displays the Save As dialog box.

Ctrl Key Combinations For Microsoft Excel 2010

Key	Description
CTRL+SHIFT+(Unhides any hidden rows within the selection.
CTRL+SHIFT+&	Applies the outline border to the selected cells.
CTRL+SHIFT_	Removes the outline border from the selected cells.
CTRL+SHIFT+~	Applies the General number format.
CTRL+SHIFT+\$	Applies the Currency format with two decimal places (negative numbers in parentheses).
CTRL+SHIFT+%	Applies the Percentage format with no decimal places.
CTRL+SHIFT+^	Applies the Scientific number format with two decimal places.
CTRL+SHIFT+#	Applies the Date format with the day, month, and year.
CTRL+SHIFT+@	Applies the Time format with the hour and minute, and AM or PM.
CTRL+SHIFT+!	Applies the Number format with two decimal places, thousands separator, and minus sign (-) for negative values.
CTRL+SHIFT+*	Selects the current region around the active cell (the data area enclosed by blank rows and blank columns). In a PivotTable, it selects the entire PivotTable report.
CTRL+SHIFT+:	Enters the current time.
CTRL+SHIFT+"	Copies the value from the cell above the active cell into the cell or the Formula Bar.
CTRL+SHIFT+Plus (+)	Displays the Insert dialog box to insert blank cells.
CTRL+Minus (-)	Displays the Delete dialog box to delete the selected cells.
CTRL+;	Enters the current date.
CTRL+`	Alternates between displaying cell values and displaying formulas in the worksheet.
CTRL+'	Copies a formula from the cell above the active cell into the cell or the Formula Bar.
CTRL+1	Displays the Format Cells dialog box.
CTRL+2	Applies or removes bold formatting.
CTRL+3	Applies or removes italic formatting.
CTRL+4	Applies or removes underlining.
CTRL+5	Applies or removes strikethrough.
CTRL+6	Alternates between hiding and displaying objects.
CTRL+8	Displays or hides the outline symbols.
CTRL+9	Hides the selected rows.
CTRL+0	Hides the selected columns.
CTRL+A	Selects the entire worksheet. If the worksheet contains data, CTRL+A selects the current region. Pressing CTRL+A a second time selects the entire worksheet. When the insertion point is to the right of a function name in a formula, displays the Function Arguments dialog box. CTRL+SHIFT+A inserts the argument names and parentheses when the insertion point is to the right of a function name in a formula.
CTRL+B	Applies or removes bold formatting.
CTRL+C	Copies the selected cells.

CTRL+D	Uses the Fill Down command to copy the contents and format of the topmost cell of a selected range into the cells below.
CTRL+F	Displays the Find and Replace dialog box, with the Find tab selected. SHIFT+F5 also displays this tab, while SHIFT+F4 repeats the last Find action. CTRL+SHIFT+F opens the Format Cells dialog box with the Font tab selected.
CTRL+G	Displays the Go To dialog box. F5 also displays this dialog box.
CTRL+H	Displays the Find and Replace dialog box, with the Replace tab selected.
CTRL+I	Applies or removes italic formatting.
CTRL+K	Displays the Insert Hyperlink dialog box for new hyperlinks or the Edit Hyperlink dialog box for selected existing hyperlinks.
CTRL+L	Displays the Create Table dialog box.
CTRL+N	Creates a new, blank workbook.
CTRL+O	Displays the Open dialog box to open or find a file. CTRL+SHIFT+O selects all cells that contain comments.
CTRL+P	Displays the Print tab in Microsoft Office Backstage view. CTRL+SHIFT+P opens the Format Cells dialog box with the Font tab selected.
CTRL+R	Uses the Fill Right command to copy the contents and format of the leftmost cell of a selected range into the cells to the right.
CTRL+S	Saves the active file with its current file name, location, and file format.
CTRL+T	Displays the Create Table dialog box.
CTRL+U	Applies or removes underlining. CTRL+SHIFT+U switches between expanding and collapsing of the formula bar.
CTRL+V	Inserts the contents of the Clipboard at the insertion point and replaces any selection. Available only after you have cut or copied an object, text, or cell contents. CTRL+ALT+V displays the Paste Special dialog box. Available only after you have cut or copied an object, text, or cell contents on a worksheet or in another program.
CTRL+W	Closes the selected workbook window.
CTRL+X	Cuts the selected cells.
CTRL+Y	Repeats the last command or action, if possible.
CTRL+Z	Uses the Undo command to reverse the last command or to delete the last entry that you typed.