EXCEL 2010

SPREADSHEETS

Spreadsheet

A spreadsheet is an interactive computer application program for organization and analysis of information in tabular form. Spreadsheets developed as computerized simulations of paper accounting worksheets.

The program operates on data represented as cells of an array, organized in rows and columns. Each cell of the array is a model–view–controller element that can contain either numeric or text data, or the results of formulas that automatically calculate and display a value based on the contents of other cells.

The user of the spreadsheet can make changes in any stored value and observe the effects on calculated values. This makes the spreadsheet useful for "what-if" analysis since many cases can be rapidly investigated without tedious manual recalculation. Modern spreadsheet software can have multiple interacting sheets, and can display data either as text and numerals, or in graphical form.

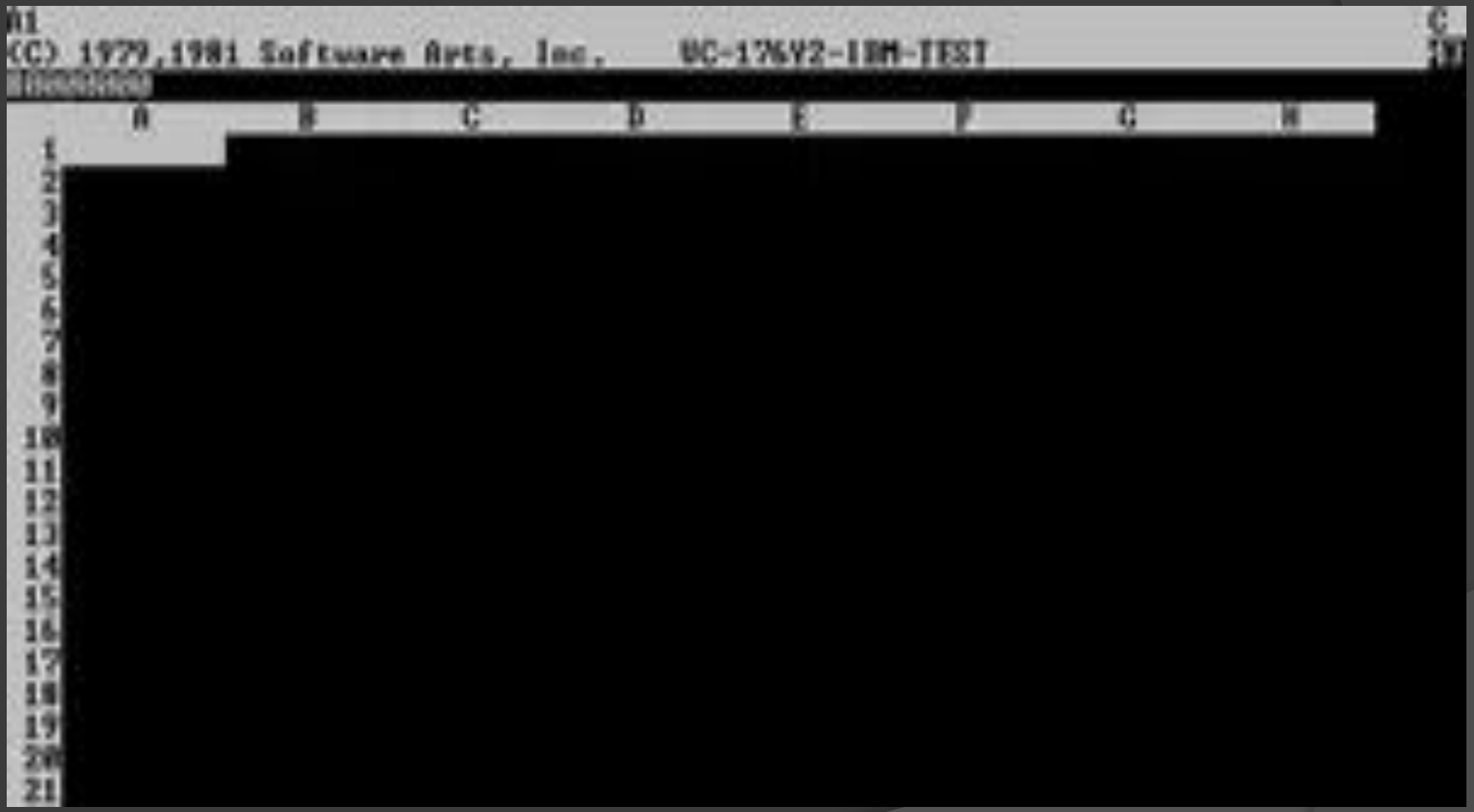
In addition to the fundamental operations of arithmetic and mathematical functions, modern spreadsheets provide built-in functions for common financial and statistical operations. Such calculations as net present value or standard deviation can be applied to tabular data with a pre-programmed function in a formula. Spreadsheet programs also provide conditional expressions, functions to convert between text and numbers, and functions that operate on strings of text.

Spreadsheets have now replaced paper-based systems throughout the business world. Although they were first developed for accounting or bookkeeping tasks, they now are used extensively in any context where tabular lists are built, sorted, and shared.

First spreadsheet

VisiCalc was the first electronic spreadsheet on a microcomputer, and it helped turn the Apple II computer into a popular and widely used system (1979). For IBM PC in 1981.

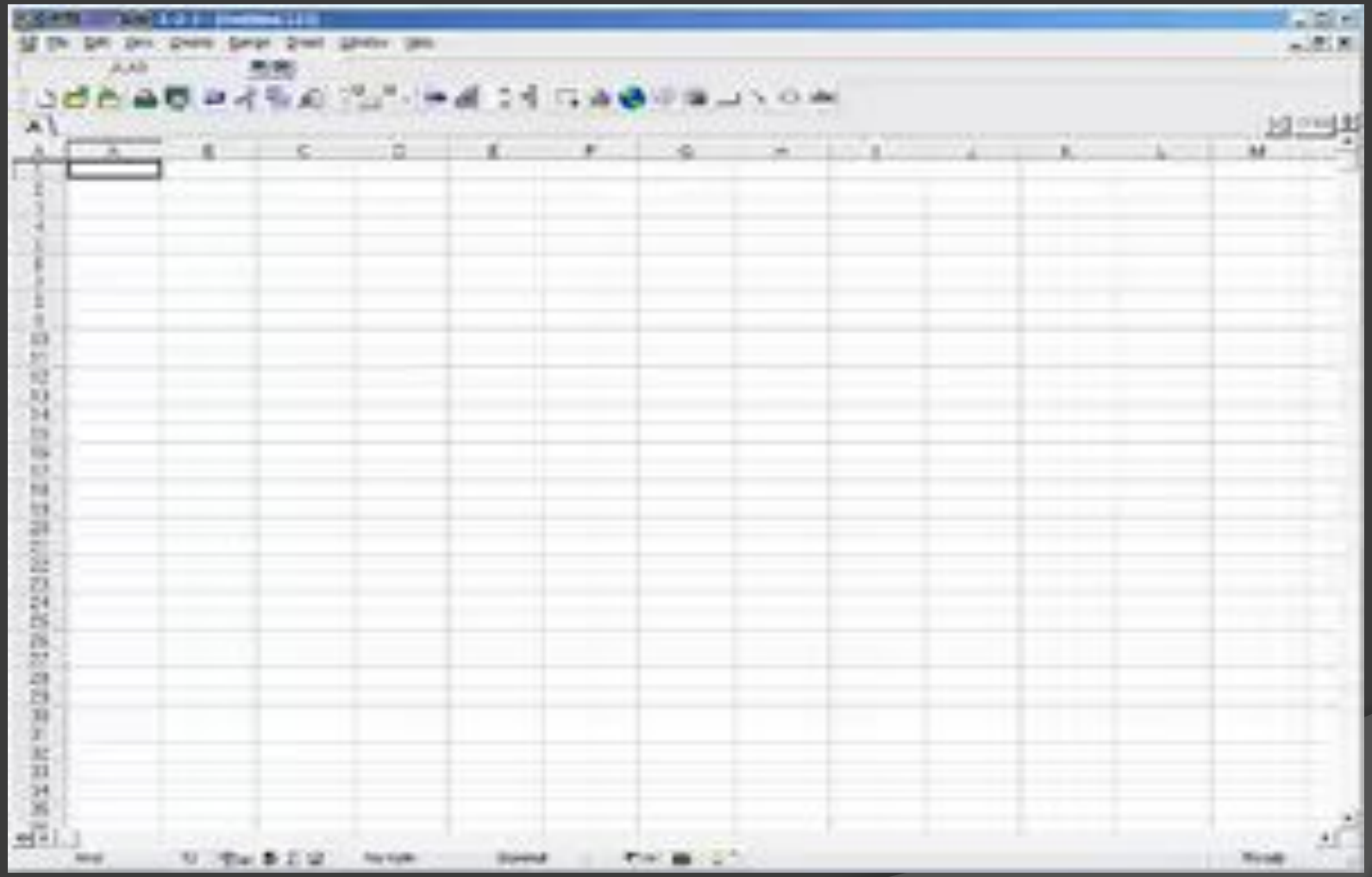
Screenshot of VisiCalc



MS-DOS

Lotus 1-2-3 (1983) was the leading spreadsheet when DOS was the dominant operating system, was written specially for IBM PC => good performance. The first “killer application”

Lotus 1-2-3



Other MS-DOS spreadsheets

Borland Quattro that replaced VisiCalc.

Now

Excel now has the largest market share on the Windows and Macintosh platforms.

A spreadsheet program is a standard feature of an office productivity suite; since the advent of *web apps*, office suites now also exist in *web app form*.

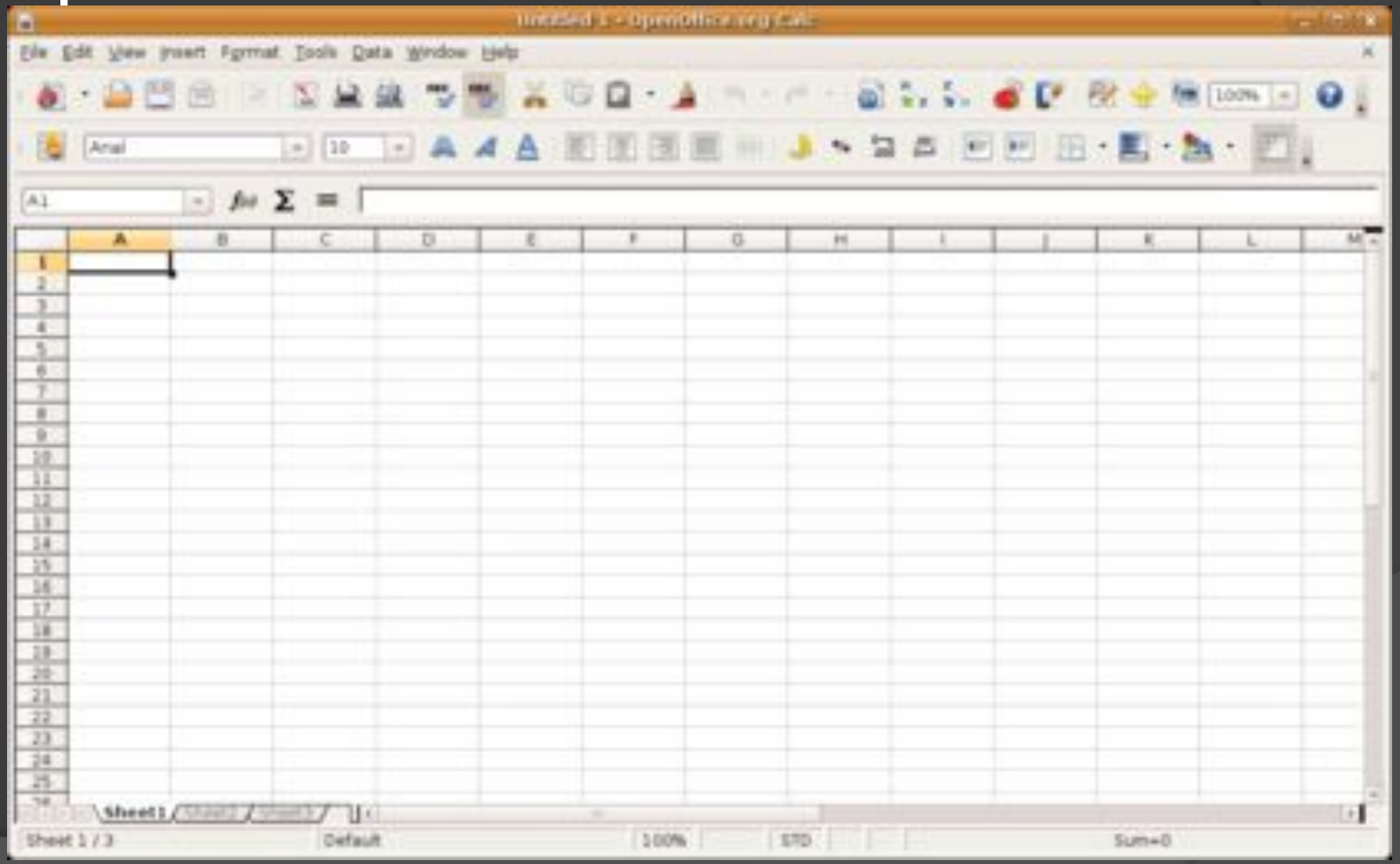
Microsoft Excel

Since the mid 1990s Excel has been the domineering commercial electronic spreadsheet.

Open source software

Gnumeric is a free, cross-platform spreadsheet program that is part of the GNOME Free Software Desktop Project. OpenOffice.org Calc and the very closely related LibreOffice Calc are free and open-source spreadsheets.

openOffice.org Calc spreadsheet



Web-based spreadsheets

Office Web Apps

Google Spreadsheets

They have real-time updates from remote sources such as stock prices and currency exchange rates.

Google spreadsheet

Google Docs

Googleshare Map Autosaved on Mar 21, 2008 8:05:38 PM GMT+01:00

File Edit Sort Formulas Revisions

B24 = samba

Range names

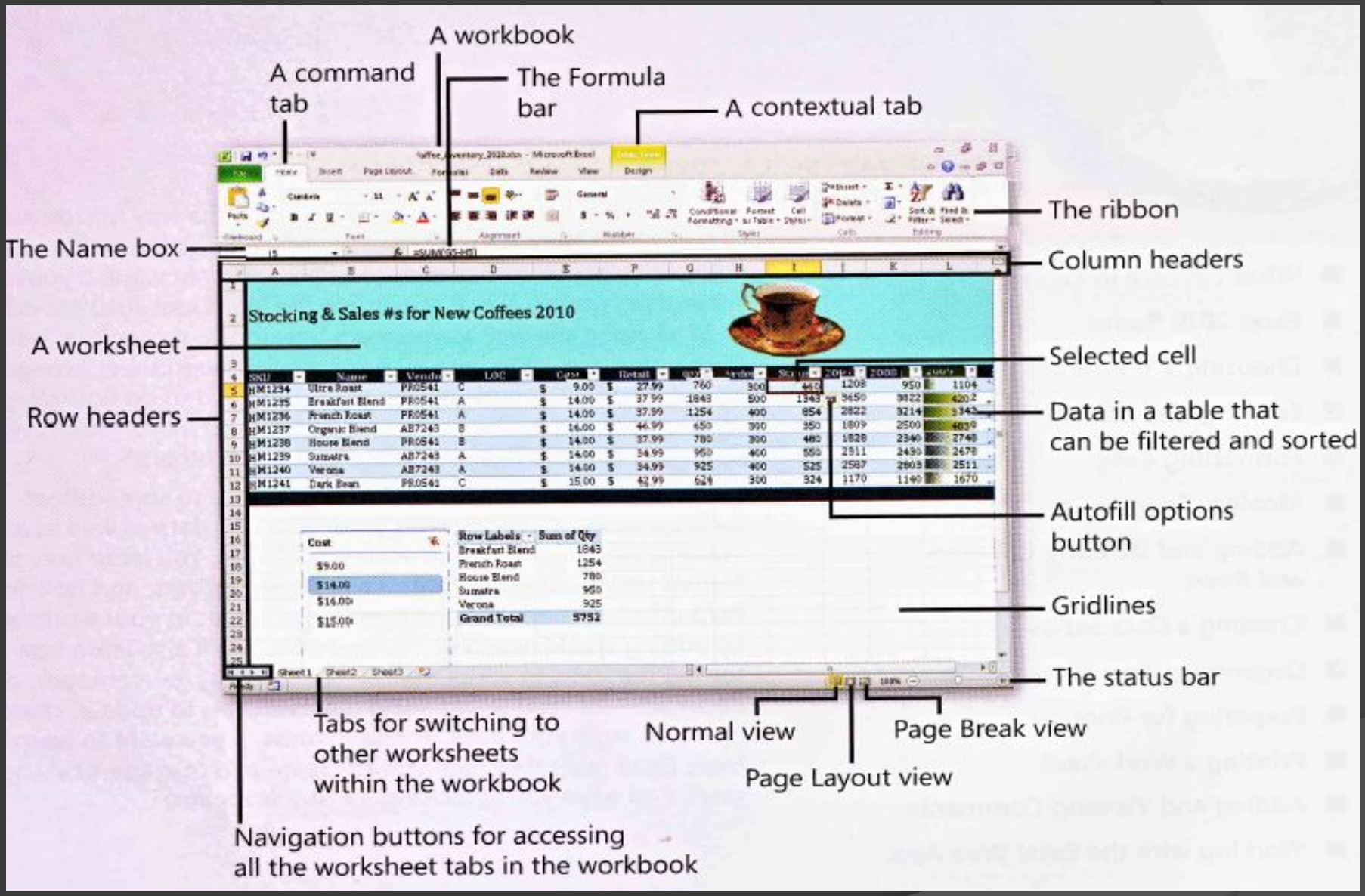
	A	B	C	D	E	F	G	H
1	Country name	Country code	Googleshare	PageCount for country name	PageCount for country name + keyword			
2	China	CN	0.09903181185	723000000	716000			
3	India	IN	0.14123006833	439000000	620000			
4	USA	US	0.06111111111	1170000000	715000			
5	Indonesia	ID	0.18514851485	303000000	561000			
6	Brazil	BR	0.23466666666	225000000	528000			
7	Pakistan	PK	0.156875	160000000	251000			
8	Bangladesh	BD	0.21140939597	89400000	189000			
9	Nigeria	NG	0.26763485477	96400000	258000			
10	Russia	RU	0.27291666666	192000000	524000			
11	Japan	JP	0.10471124620	658000000	689000			
12	Germany	DE	0.10428305400	537000000	560000			
13	UK	UK	0.05025806451	1550000000	779000			
14	France	FR	0.07201754385	1140000000	821000			
15	Canada	CA	0.06029411764	1020000000	615000			
16	Korea	KR	0.23644067796	236000000	558000			
17	Poland	PL	0.15324074074	216000000	331000			
18	Hungary	HU	0.15075757575	132000000	199000			
19	Iraq	IQ	0.26802325581	172000000	461000			
20	Greece	GR	0.20616438356	146000000	301000			
21	Mexico	MX	0.09625748503	668000000	643000			
22	Libya	LY	0.20230607966	47700000	96500			
23								
24	Keyword:	samba						

Excel 2010

Organize financial information

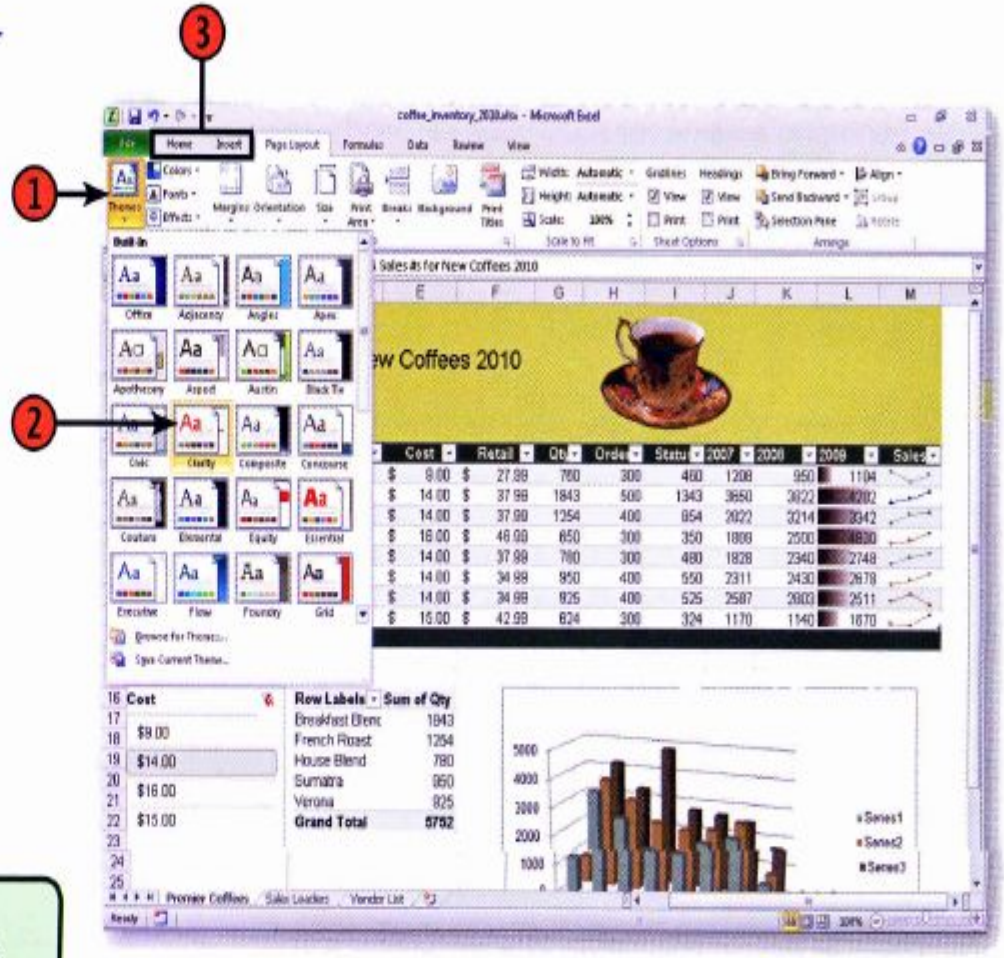
Perform calculations

Display results in different ways


A workbook
A command tab
The Formula bar
A contextual tab
The ribbon
The Name box
Column headers
A worksheet
Selected cell
Row headers
Data in a table that can be filtered and sorted
Autofill options button
Gridlines
The status bar
Tabs for switching to other worksheets within the workbook
Normal view
Page Break view
Page Layout view
Navigation buttons for accessing all the worksheet tabs in the workbook
Stocking & Sales #s for New Coffees 2010

Apply a Theme

1. On the Page Layout tab, click the Themes button to display the Themes gallery.
2. Do any of the following:
   - Point to a theme to see how your worksheet will look if you use that theme.
   - Click the theme you want to use.
   - Click Browse For Themes to display the Choose Theme Or Themed Document dialog box. Select a theme, or select a document that contains the theme you want, and click Open.
3. Use the tools on the Home and Insert tabs as you normally would, selecting from the theme fonts and colors shown or selecting non-theme fonts and colors for special effects.



Tip

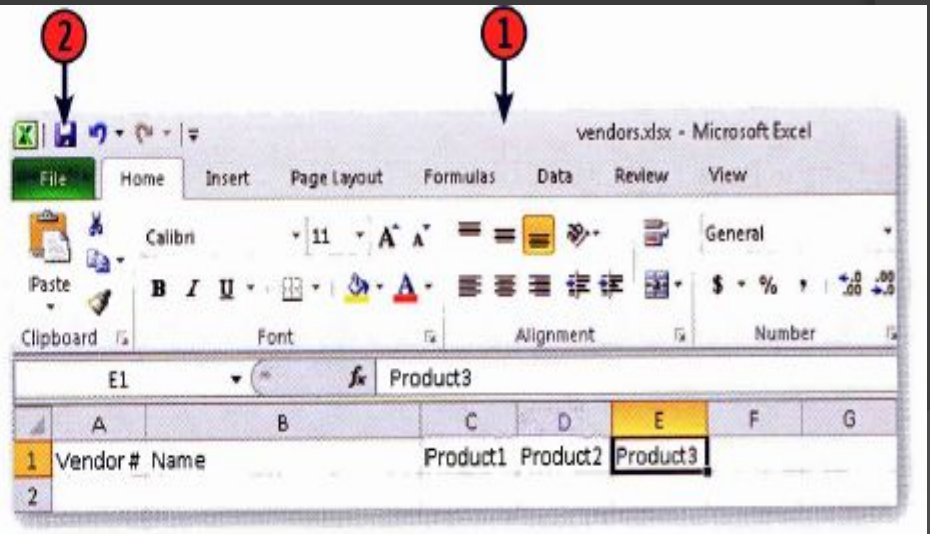
You're not limited to the fonts or colors of your theme. The theme fonts and colors are suggested and usually appear at the top of your formatting choices, but you can choose any fonts and colors you want. Any font, color, or effect choices you make that aren't part of theme won't change automatically if you choose a different theme at a later time, however.

Entering the data

You can start with a template or begin with a blank worksheet, then

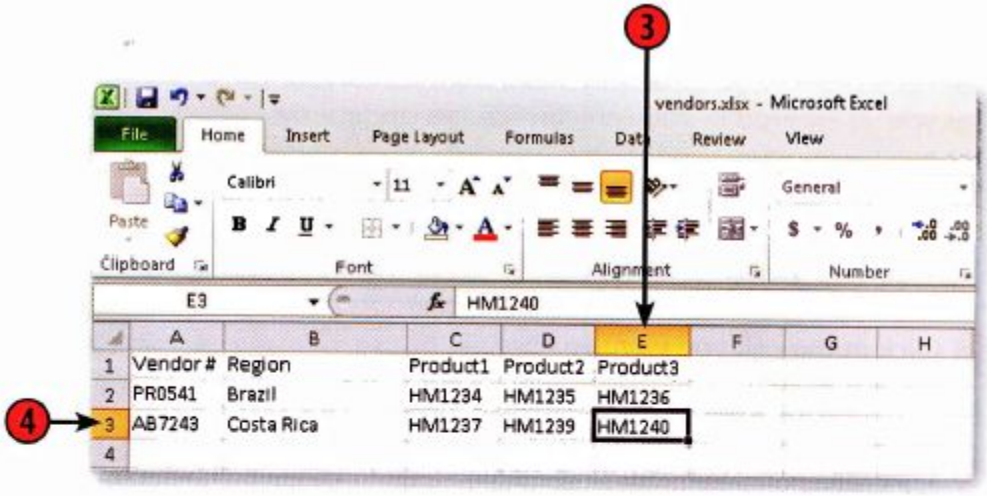
1. Start a new workbook if necessary.
2. Save the workbook with a new file name by clicking Save in the Quick Access toolbar and entering a name for the worksheet, and clicking Save.

(continued on next page)



Enter Your Data *(continued)*

3. Type the header for the first column, press Tab, and type the header of the next column. Continue across the top row to enter all column headers. Press Enter after you've typed the last item.
4. Click in the beginning of the second row, and enter your data. Press Tab, and continue entering your data. Press Enter after you've typed the last item.
5. Continue entering your data row by row, and be sure to save the file periodically. Use the keys in Table 7-1 to navigate through your worksheet data.



Navigating the Worksheet

Key	Description
Tab	Selects the cell to the right
Shift+Tab	Selects the cell to the left
Enter	Selects the cell one row down
Shift+Enter	Selects the cell one row up
Right arrow	Selects the cell to the right
Left arrow	Selects the cell to the left
Up arrow	Selects the cell one row up
Down arrow	Selects the cell one row down
Home	Selects cell A1
Ctrl+right arrow	Selects the cell farthest right in the current row
Ctrl+left arrow	Selects the cell farthest left in the current row

More sources

You can also import data from

A TEXT FILE,

A WEB SOURCE

MS ACCESS DATABASE

In this case you click the **Data** tab and click your choice in the **Get External Data** group, then navigate to the file you want to use and click **Open** to add your data at the selected cell.

Some facts

Number of rows 1 048 576

Number of columns 16 385

Width of column 255 characters

Number of colours 16 mln

Editing data

Often you need to go back and make changes to your data after you have entered it.

You can correct and update the data quickly either by replacing the contents of an entire cell or by editing the existing content.

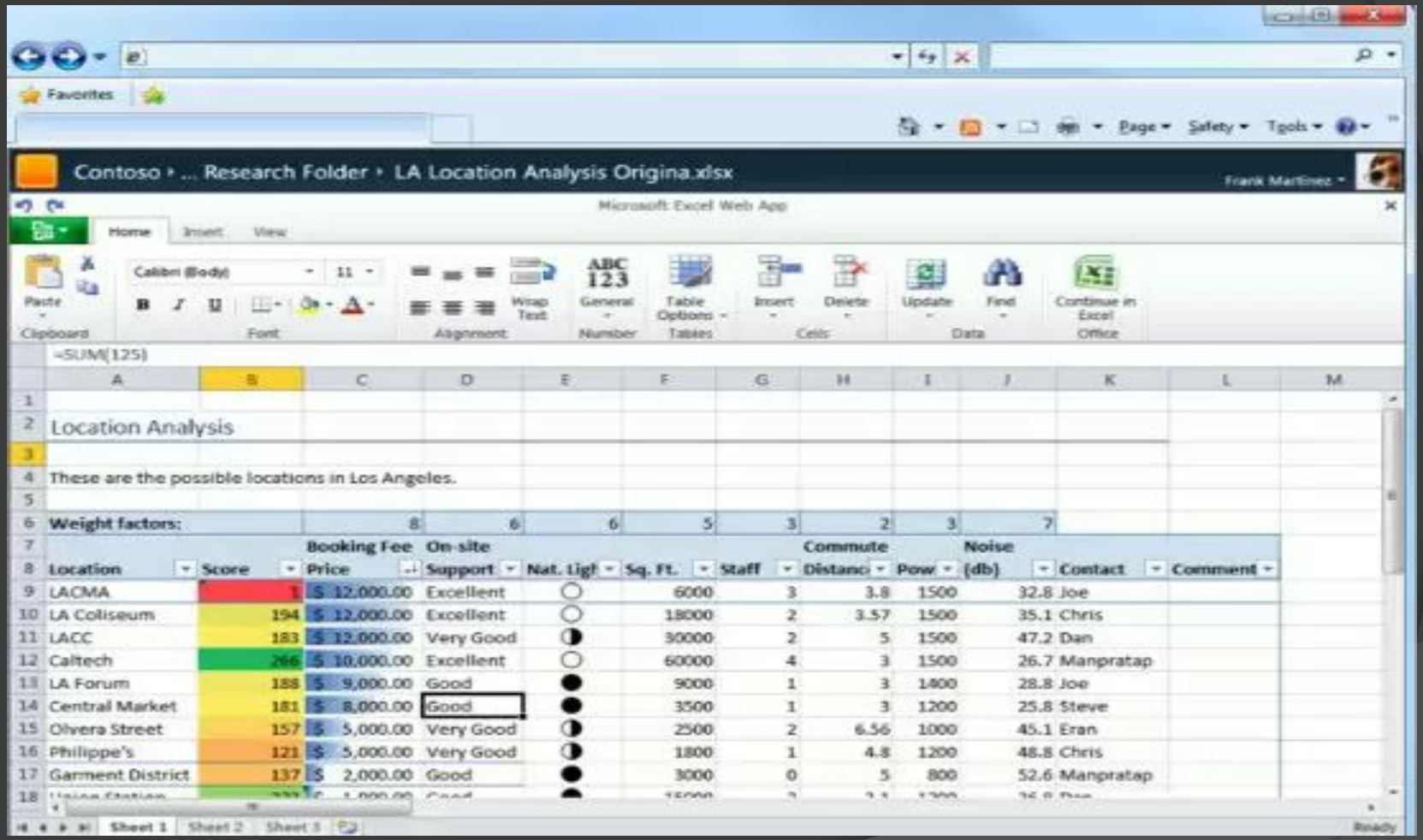
Formatting cells

You can considerably improve the look of your worksheet by using Excel's many formatting features. Formatting your data serves a number of purposes:

Helps others reviewing your data see easily what's most important on the worksheet;

Helps you organize your data so that you can easily find what you need later.

Example of a worksheet with some formatting



	Location	Score	Booking Fee Price	On-site Support	Nat. Ligt	Sq. Ft.	Staff	Commute Distanc	Pow	Noise (db)	Contact	Comment
Weight factors:		8	6	6	5	3	2	3	7			
9	LACMA	1	$ 12,000.00	Excellent	○	6000	3	3.8	1500	32.8	Joe	
10	LA Coliseum	194	$ 12,000.00	Excellent	○	18000	2	3.57	1500	35.1	Chris	
11	LACC	183	$ 12,000.00	Very Good	◑	30000	2	5	1500	47.2	Dan	
12	Caltech	266	$ 10,000.00	Excellent	○	60000	4	3	1500	26.7	Manpratap	
13	LA Forum	188	$ 9,000.00	Good	●	9000	1	3	1400	28.8	Joe	
14	Central Market	181	$ 8,000.00	Good	●	3500	1	3	1200	25.8	Steve	
15	Olvera Street	157	$ 5,000.00	Very Good	◑	2500	2	6.56	1000	45.1	Eran	
16	Philippe's	121	$ 5,000.00	Very Good	◑	1800	1	4.8	1200	48.8	Chris	
17	Garment District	137	$ 2,000.00	Good	●	3000	0	5	800	52.6	Manpratap	

Predefined formats

For this purpose, you can use Excel's predefined formats to choose a look for your cells that makes the data stand out. The cell styles available in the **Styles** group of the **Home** tab are coordinated with the theme you select for the worksheet, so all colors and fonts available are consistent with the overall theme you have chosen.

Formatting numbers

When you look at columns and rows full of numbers it might not be clear what those numbers represent. Are they values showing dollar amount? Are they percentages of something? You can improve the readability of your workbook by using standard numeric formatting to make everything as clear as possible for those viewing your worksheet.

Moving, copying, pasting

Moving, copying and pasting data is similar to the same in Word.

However, when you copy data in Excel, you'll need to have a blank area ready to receive the data; otherwise, Excel will overwrite any existing data.

You can also tell Excel to copy the contents of a cell to a group of adjacent cells.

Live Preview

Excel 2010 includes Paste with Live Preview feature to see how your information will look when pasted using different paste options.

You can choose how you want the information to be pasted both before and after you add it to your worksheet.

Adding and deleting columns and rows

When you add or delete several rows or columns at one time or clear all the contents of multiple rows or columns, select them before you right-click. To select nonadjacent rows or columns. Hold down the **Ctrl** key as you click each row or column header.

To quickly clear the content of a selected cell or cells without removing any formatting, press the **Delete** key.

Hiding columns and rows

When you create a worksheet, it sometimes contains columns and rows of data that aren't relevant for every review or for every use of the worksheet.

You can suppress the display of data you do not want displayed for general view by hiding columns and rows. Late you can reveal the data once again easily to return the data to normal view.

To do this,

You select rows or columns and then right-click on the selected headers, and choose **Hide** from the shortcut menu.

BUT, to make sure that you do not accidentally distribute a worksheet that contains information you do not want to share with others, make sure there are no hidden rows or columns in your final version of the workbook.

How?

To check for hidden rows or columns, run the **Document Inspector** by clicking the **File** tab, and then clicking **Check For Issues** in the **Prepare Sharing** group.

Click **Inspect Document** in the list.

Formatting cell dimensions

You can set the

Column width

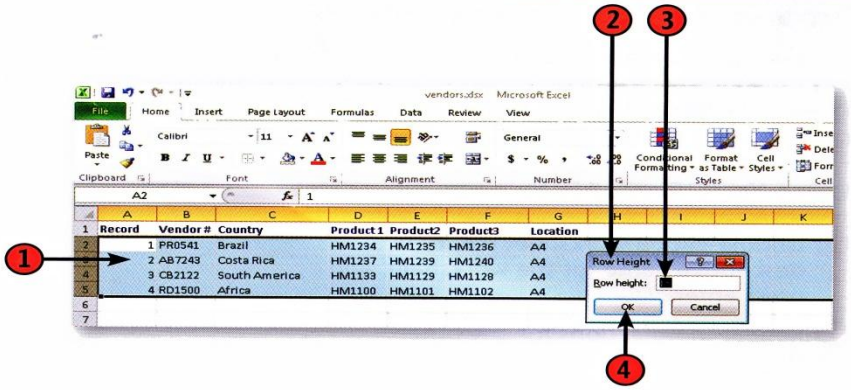
Row height

Adjust the Height or Width to fit the content

Formatting Cell Dimensions

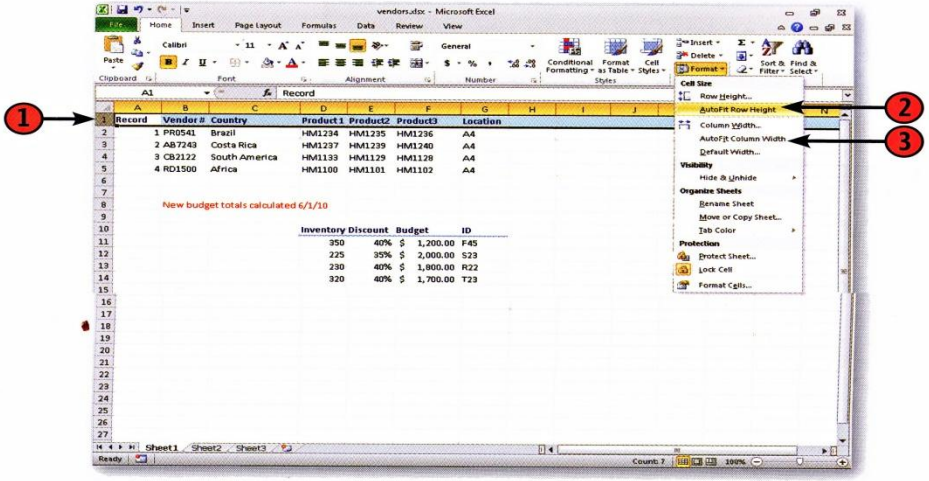
Set the Row Height

1. Select the rows whose heights you want to change.
2. Right-click one of the selected row headers, and choose Row Height from the shortcut menu to display the Row Height dialog box.
3. Specify the height of the rows in points.
4. Click OK.



Adjust the Height or Width to Fit the Content

1. Select the cells that you want to format.
2. On the Home tab, click the Format button, and choose AutoFit Row Height from the drop-down menu.
3. Click the Format button again, and choose AutoFit Column width from the drop-down menu.



Preparing for Printing

Set page dimensions:

On the **Page Layout** tab click **Margin** and set the ones you want to.

Click the **Orientation** button and click either **Portrait** or **Landscape**

Click the **Size** button, and select the paper size

Specify the scaling to change the size of the printed worksheet

Specify whether you want to display and/or print the gridlines and the headings

Part II

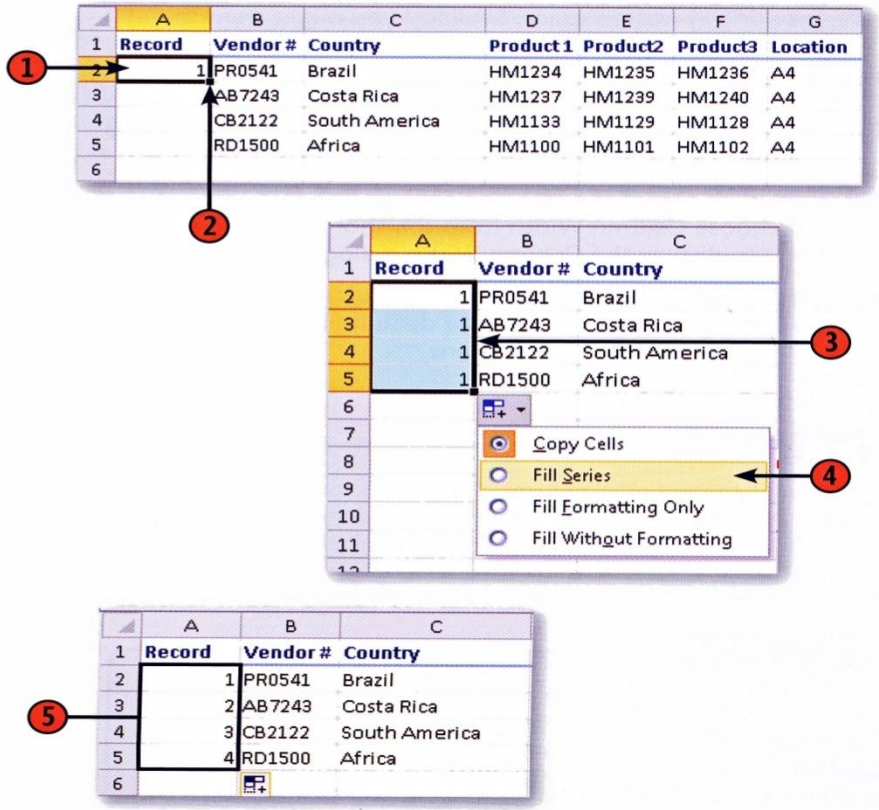
Creating a Data Series

Creating a Data Series

When you're working with a *series*—that is, a particular set of data such as a series of dates or a list of consecutive numbers—numbering or labeling all the items in the series can be time consuming. You can put your time to better use by letting Excel do the work for you. All you need to do is make sure that Excel recognizes the data as a series.

Create a Series

1. Type the first item in the series.
2. Point to the bottom-right corner of the cell until the mouse pointer turns into a cross (the Fill handle).
3. Drag the Fill handle to fill the cells that you want to be included in the series.
4. If Excel copied the cell instead of creating a series or didn't fill the series as you expected, click the AutoFill Options button, and select Fill Series or any other appropriate option.
5. Make sure the series is correct. If it isn't, click the Undo button on the Standard toolbar and try again.



Tip

If the Fill Series option isn't listed on the AutoFill Options shortcut menu, Excel doesn't recognize the data as a series. You can define your own series by clicking File and choosing Options; then click the Advanced tab and in the General area, click Edit Custom Lists. In the Custom Lists dialog box, define your list, and click OK.

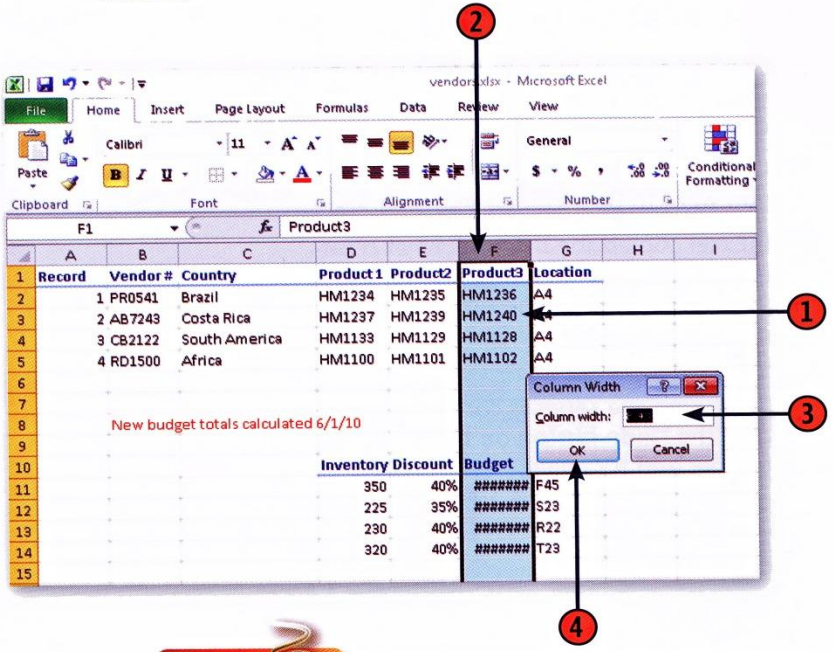
Formatting Cell Dimensions

Formatting Cell Dimensions

You can adjust the height and width of cells, rows, and columns to accommodate the formatting you want to use in your worksheets. As you enter information, you might find that some columns are too narrow, resulting in truncated content. In other columns, you might find that some columns are too wide, resulting in wasted space. Similarly, you might want to increase the height of the rows to increase the readability of the content. Although a row will automatically increase in height if you increase the font size of its content, you might want to increase the height of the row and then change the vertical alignment of the text to add space above or below the content.

Set the Column Width

1. Select the columns whose widths you want to change.
2. Right-click one of the selected column headers, and choose Column Width from the shortcut menu to display the Column Width dialog box.
3. Specify the width of the columns, calculated by the number of characters of the default font that can be displayed on one line.
4. Click OK.



Tip

To change the vertical alignment of text in one or more rows, select the cells to be adjusted, and then click the Top Align, Middle Align, or Bottom Align button in the Alignment section of the Home tab.

Tip

To select the entire worksheet, click the blank header between the "1" row header and the "A" column header. If the cells in the area you want to format are contiguous—that is, all the cells are adjacent to one another—just click in any one of the cells before you choose AutoFormat, and Excel will figure out the area to be formatted.

Try This!

Select alternating columns in your worksheet (click the first column, press and hold Ctrl, and click the third column, for example). Click the Fill Color tool in the Font group of the Home tab. Click a color from the Theme Colors section of the palette. The color is applied to the selected color.

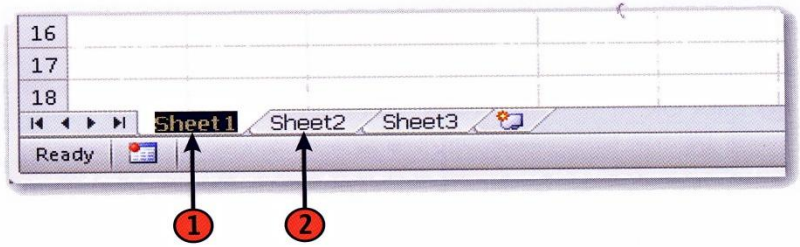
Organizing Your Worksheets

Organizing Your Worksheets

Up to this point, you've learned how to add and work with data on your worksheet. Excel also includes features that help you organize the various worksheets you create. As you know, each worksheet appears on its own tab in your workbook. You can customize the worksheets, rename the tabs, reorder the worksheets, and add new ones as needed, all from within your current workbook.

Name Your Worksheets

1. Double-click a worksheet tab, type a descriptive name for the worksheet, and press Enter.
2. Repeat these actions for any other worksheet tabs you'd like to rename.

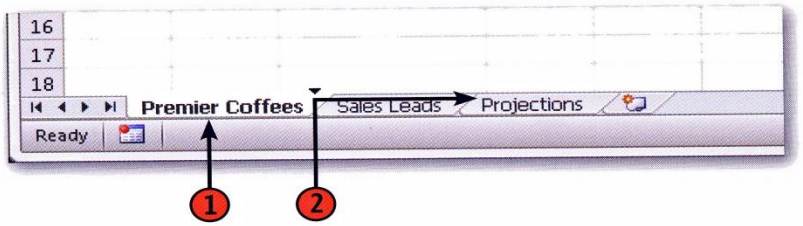


Tip

To change the color of a worksheet tab, right-click the tab, choose Tab Color from the shortcut menu, and click the color you want in the gallery.

Change Their Order

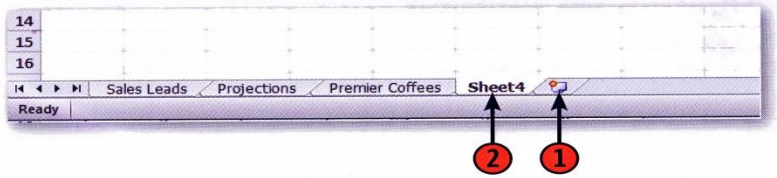
1. Click the tab of the worksheet you want to move.
2. Drag the tab to the desired location.



Inserting & Deleting a Worksheet

Insert a Worksheet

1. Click the Insert Worksheet button.
2. Rename the new worksheet, and move it to a different position among the tabs if you want.

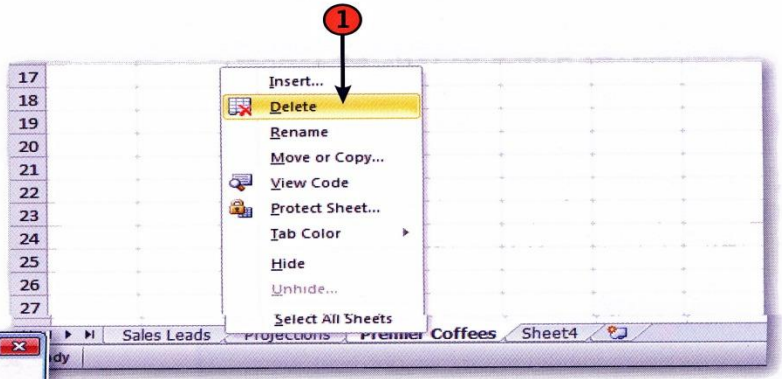


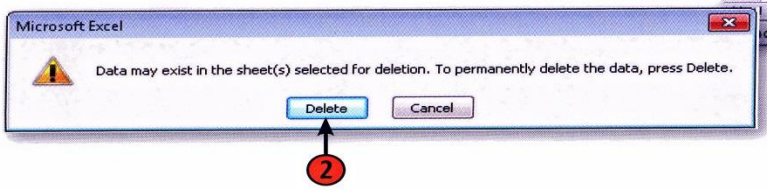
Tip

To hide a worksheet from view instead of deleting it, right-click the tab, and choose Hide from the shortcut menu. To display the worksheet again, right-click a tab, choose Unhide from the shortcut menu, and, in the Unhide dialog box, select the worksheet to be displayed.

Delete a Worksheet

1. Right-click the tab of the worksheet you want to delete, and choose Delete from the shortcut menu.
2. When you're asked to confirm the deletion, click Delete.



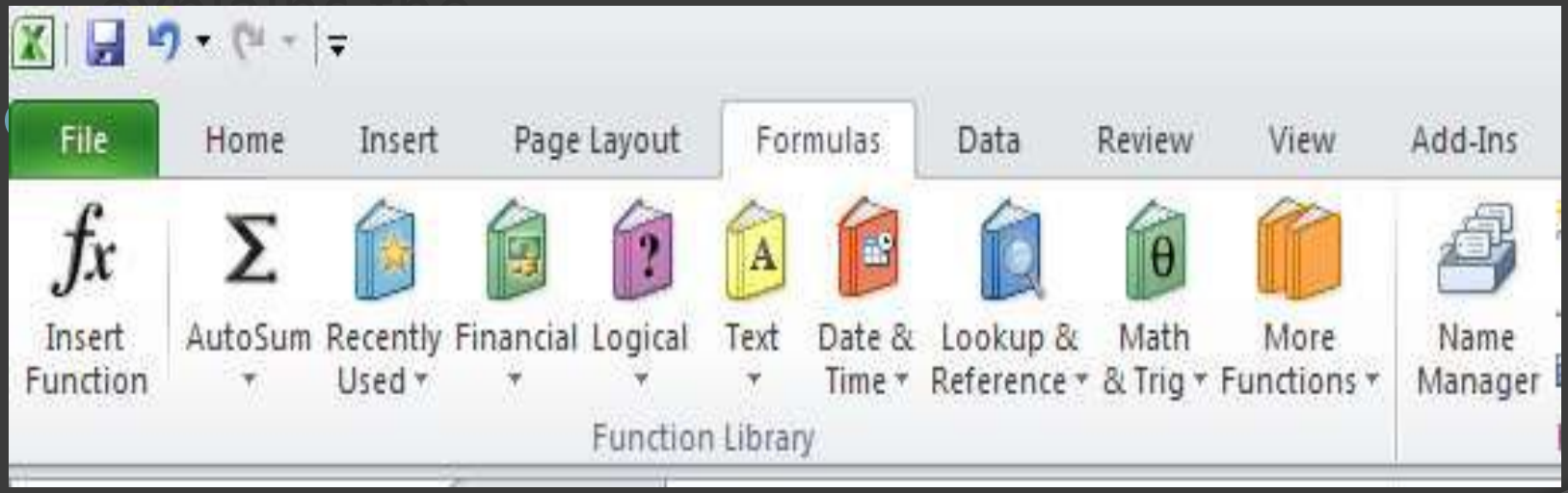


Operations in formulas

: colon	+ addition
Single space	- Subtraction
, comma	& connects two strings of text
- Negation	= comparison (equal to)
% percent	< less than
^ exponentiation	> Greater than
* Multiplication	>= greater than or equal to
/ division	<= less than or equal to
	<> Not equal to

Formulas

- When you scroll the mouse over a formula Excel will have a small dialog box that



References

Relative

Absolute

Mixed

References to other worksheets

References

Reference Type	Formula	What Happens After Copying the Formula
Relative	=A1	Both the column letter A and the row number 1 can change.
Absolute	=A1	The column letter A and the row number 1 do not change.
Mixed	=$A1	The column letter A does not change. The row number 1 can change.
Mixed	=A$1	The column letter A can change. The row number 1 does not change.

Database functions

DAVERAGE	Returns the average of selected database entries
DCOUNT	Counts the cells that contain numbers in a database
DCOUNTA	Counts nonblank cells in a database
DGET	Extracts from a database a single record that matches the specified criteria
DMAX	Returns the maximum value from selected database entries
DMIN	Returns the minimum value from selected database entries

Date and time functions

Function	Description
DATE	Returns the serial number of a particular date
DATEVALUE	Converts a date in the form of text to a serial number
DAY	Converts a serial number to a day of the month
HOUR	Converts a serial number to an hour
MINUTE	Converts a serial number to a minute
MONTH	Converts a serial number to a month
SECOND	Converts a serial number to a second
TODAY	Returns the serial number of today's date
YEAR	Converts a serial number to a year

Text functions

Function	Description
CHAR	Returns the character specified by the code number
DOLLAR	Converts a number to text, using the $ (dollar) currency format
FIND, FINDB	Finds one text value within another (case-sensitive)
SUBSTITUTE	Substitutes new text for old text in a text string
TEXT	Formats a number and converts it to text
LOWER	Converts text to lowercase
UPPER	Converts text to uppercase
VALUE	Converts a text argument to a number

Financial functions

Function	Description
ACCRINT	Returns the accrued interest for a security that pays periodic interest
ACCRINTM	Returns the accrued interest for a security that pays interest at maturity
AMORLINC	Returns the depreciation for each accounting period
XNPV	Returns the net present value for a schedule of cash flows that is not necessarily periodic
FV	Returns the future value of an investment
XNPV	Returns the net present value for a schedule of cash flows that is not necessarily periodic
YIELD	Returns the yield on a security that pays periodic interest
YIELDDISC	Returns the annual yield for a discounted security; for example, a Treasury bill
YIELDMAT	Returns the annual yield of a security that pays interest at maturity

Information functions

CELL	Returns information about the formatting, location, or contents of a cell
ISBLANK	Returns TRUE if the value is blank
ISEVEN	Returns TRUE if the number is even
ISLOGICAL	Returns TRUE if the value is a logical value
ISNONTEXT	Returns TRUE if the value is not text
ISNUMBER	Returns TRUE if the value is a number
ISODD	Returns TRUE if the number is odd
ISREF	Returns TRUE if the value is a reference
NA	Returns the error value #N/A
TYPE	Returns a number indicating the data type of a value

Logical functions

Function	Description
AND	Returns TRUE if all of its arguments are TRUE
FALSE	Returns the logical value FALSE
IF	Specifies a logical test to perform
NOT	Reverses the logic of its argument
OR	Returns TRUE if any argument is TRUE
TRUE	Returns the logical value TRUE

Lookup and reference functions

Function	Description
ADDRESS	Returns a reference as text to a single cell in a worksheet
COLUMN	Returns the column number of a reference
COLUMNS	Returns the number of columns in a reference
LOOKUP	Looks up values in a vector or array
ROW	Returns the row number of a reference
ROWS	Returns the number of rows in a reference
VLOOKUP	Looks in the first column of an array and moves across the row to return the value of a cell

Math and trigonometry functions

Function	Description
ABS	Returns the absolute value of a number
COS	Returns the cosine of a number
EXP	Returns *e* raised to the power of a given number
INT	Rounds a number down to the nearest integer
MDETERM	Returns the matrix determinant of an array
MOD	Returns the remainder from division

Statistical functions

Function	Description
AVERAGE	Returns the average of its arguments
CORREL	Returns the correlation coefficient between two data sets
COUNT	Counts how many numbers are in the list of arguments
COUNTA	Counts how many values are in the list of arguments
COUNTIF	Counts the number of nonblank cells within a range that meet the given criteria
MAX	Returns the maximum value in a list of arguments
FREQUENCY	Returns a frequency distribution as a vertical array

Engineering functions

External functions

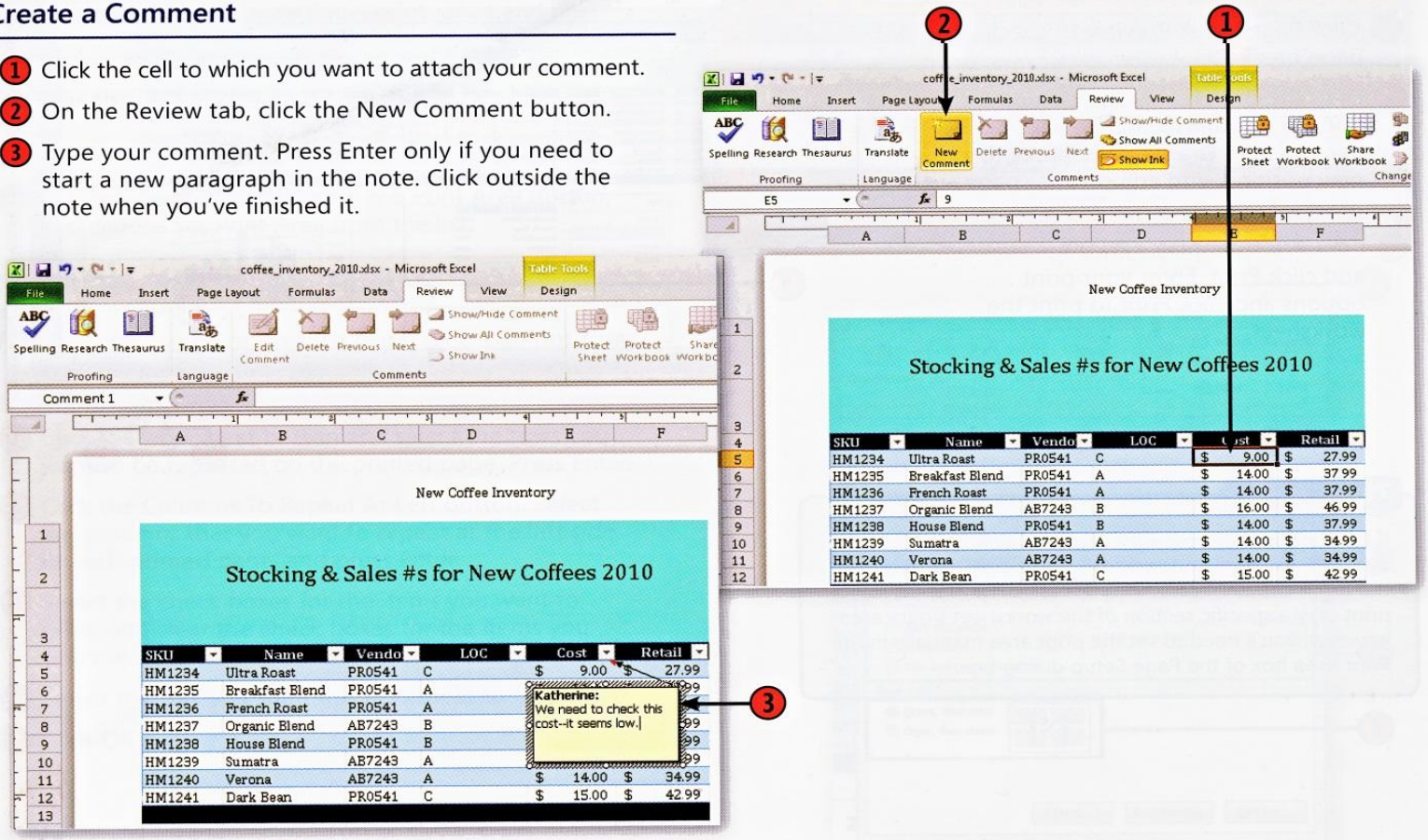
Comments

Adding and Viewing Comments

You can use comments in a workbook in a couple of ways. You can add an explanatory comment to an item to track what you did or clarify it to others, or you can use a comment when you're reviewing a worksheet to add any concerns or suggestions.

Create a Comment

1. Click the cell to which you want to attach your comment.
2. On the Review tab, click the New Comment button.
3. Type your comment. Press Enter only if you need to start a new paragraph in the note. Click outside the note when you've finished it.



Comments

Review the Comments

1. Move the mouse pointer over a cell that contains a red triangle in the top-right corner. Read the comment that appears.
2. If you can't find a comment, or if you want to review several comments, on the Review tab, do any of the following:
   - Click Previous or Next to find and display a comment.
   - Click Show All Comments to display all the comments in the worksheet.
   - With a comment displayed, click Edit Comment to modify the comment. (The New Comment button changes to the Edit Comment button when a comment is selected and displayed.)

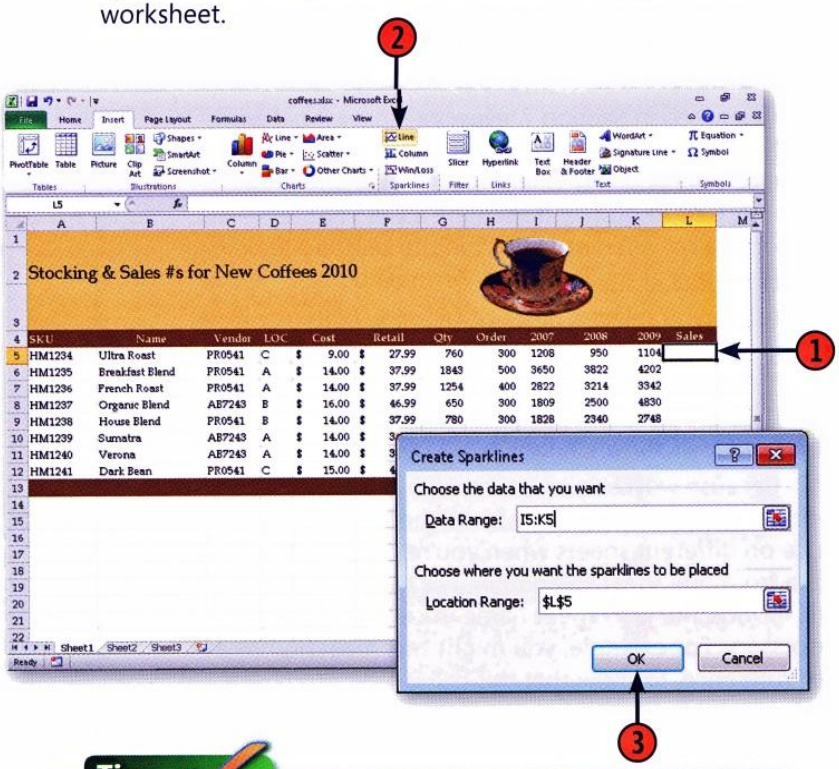
Adding Sparklines

An exciting new feature in Excel 2010 called *sparklines* enables you to show cell-based illustrations of data trends or values in your worksheet. This enables you to show, for example, how sales in a certain region are trending (up or down?), how a particular product sold during a promotion, or how your inventory levels changed during a specific timeframe. Sparklines are easy to create and customize in your Excel worksheet.

Create Sparklines

1. Click in the cell in which you want to create the sparkline.
2. Click the Insert tab, and choose the type of sparkline you want to create.
3. When the Create Sparklines dialog box appears, drag to select the cells you want to use for the sparkline. Click OK.

(continued on next page)



Sparkline Styles

Style	Name	Description
Line	Line	Adds a line chart to the current cell depicting the data in the range you select
Column	Column	Inserts a column chart contrasting the data values in the cells you specify
Win/Loss	Win/Loss	Displays a win/loss chart of the selected cell values

Tip

You can copy the sparkline to a column or range of cells by clicking the small handle in the lower right corner of the sparkline cell and dragging the cell border across the columns or rows you want to display sparklines. Sparklines are added in the original sparkline's style and the sparkline display in each cell is adjusted to reflect the range in that row or column.

Create Sparklines *(continued)*

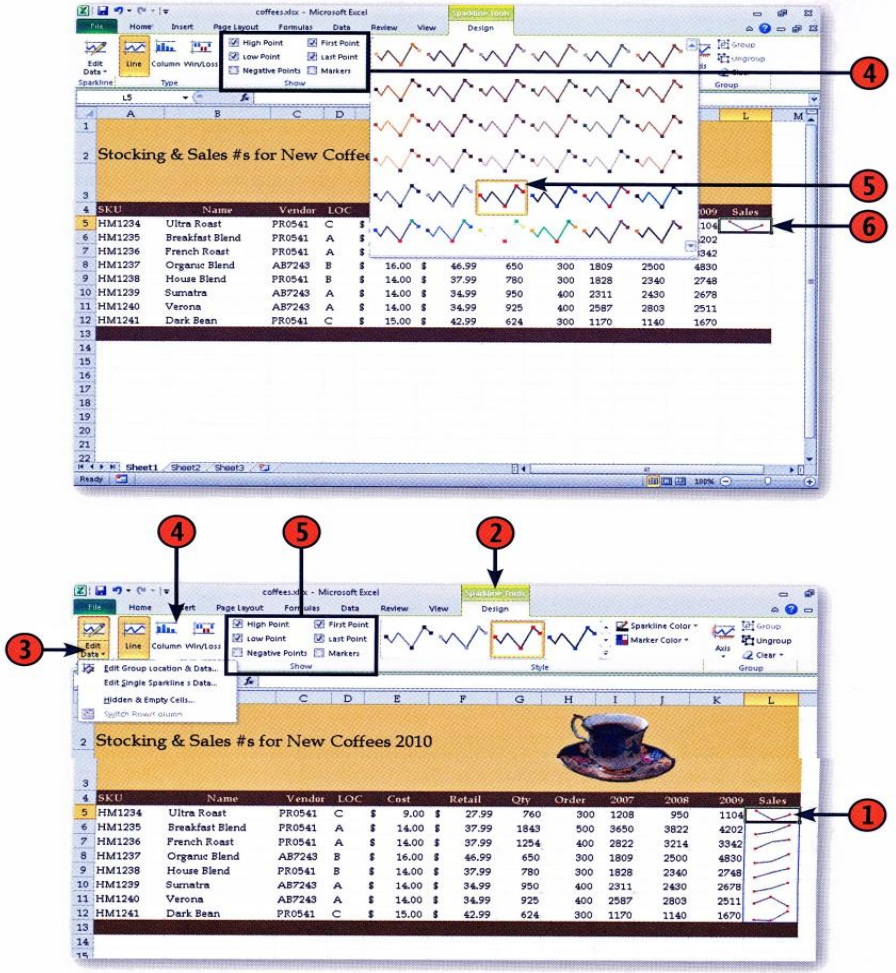
4. In the Show area, click the markers you want to add to the sparkline
5. Click the More button in the Style group to display a palette of sparkline styles, and click the style you want to apply.
6. Customize the line and marker color as needed.

Edit Sparklines

1. Click in the cell containing the sparkline you want to change.
2. Click the Sparkline Tools Design tab.
3. Click Edit Data in the Sparkline group if you need to change cell data.
4. Change the sparkline type by clicking a new option in the Type group.
5. Modify the Show settings, and change Style if necessary.

Tip

If you want to delete the sparklines you've added to your worksheet, select the sparklines, and in the Group group of the Sparklines Tools Design tab, click Clear and then click Clear Selected Sparklines.

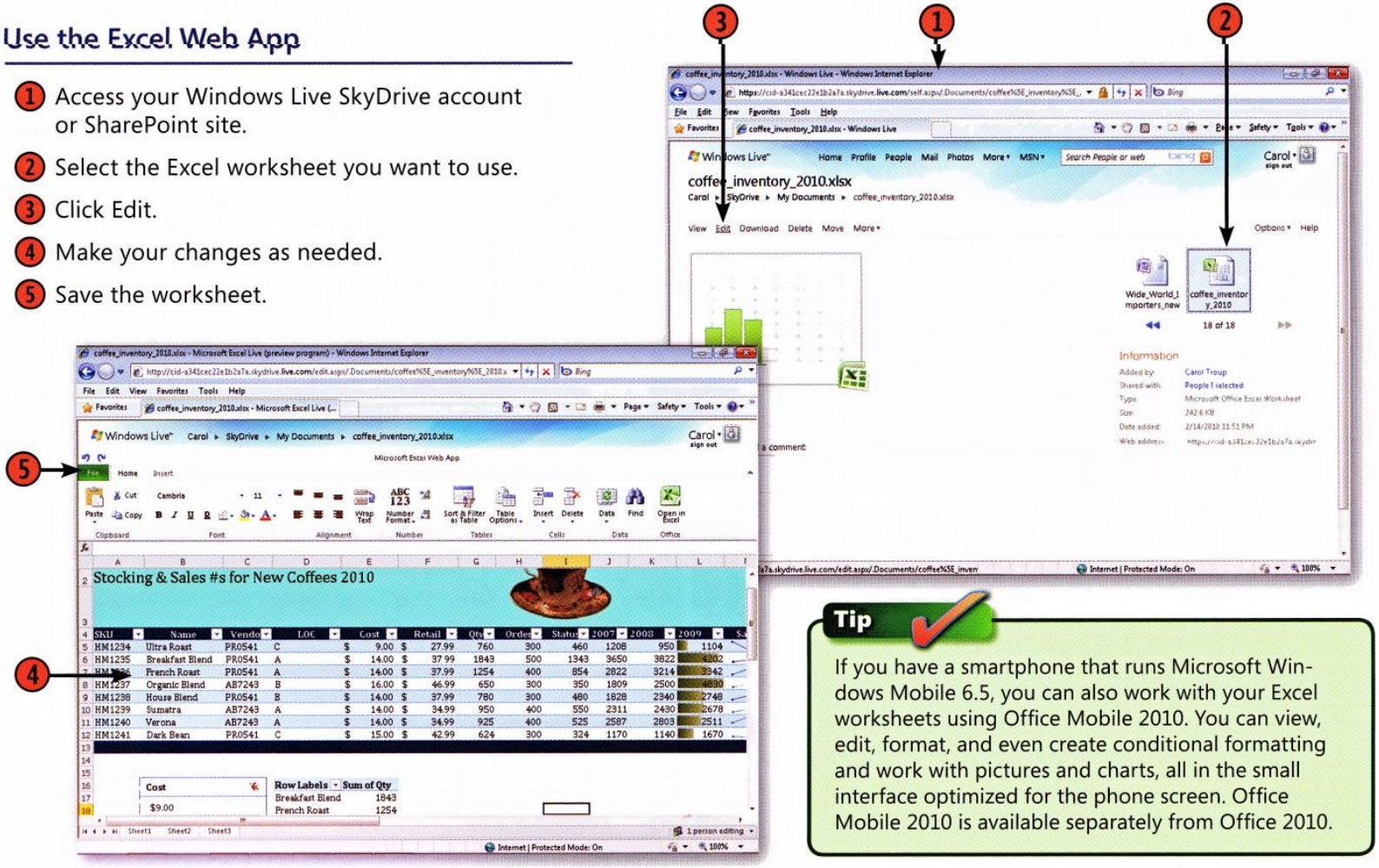


Working with the Excel Web App

Excel 2010 is now available to you anywhere you go, as long as you have access to the Internet. Using the Excel Web App, you can view, edit, format, save, and share the worksheets you create. What's more, when you have saved an Excel 2010 worksheet to your Microsoft SharePoint Workspace 2010 or Windows Live SkyDrive account, you can co-author your worksheets in real time and communicate with your co-authors while you work.

Use the Excel Web App

1. Access your Windows Live SkyDrive account or SharePoint site.
2. Select the Excel worksheet you want to use.
3. Click Edit.
4. Make your changes as needed.
5. Save the worksheet.



Tip

If you have a smartphone that runs Microsoft Windows Mobile 6.5, you can also work with your Excel worksheets using Office Mobile 2010. You can view, edit, format, and even create conditional formatting and work with pictures and charts, all in the small interface optimized for the phone screen. Office Mobile 2010 is available separately from Office 2010.