



Computer Training Workshop

Beginning Excel 2003

Presented By
Information Technology Services Support

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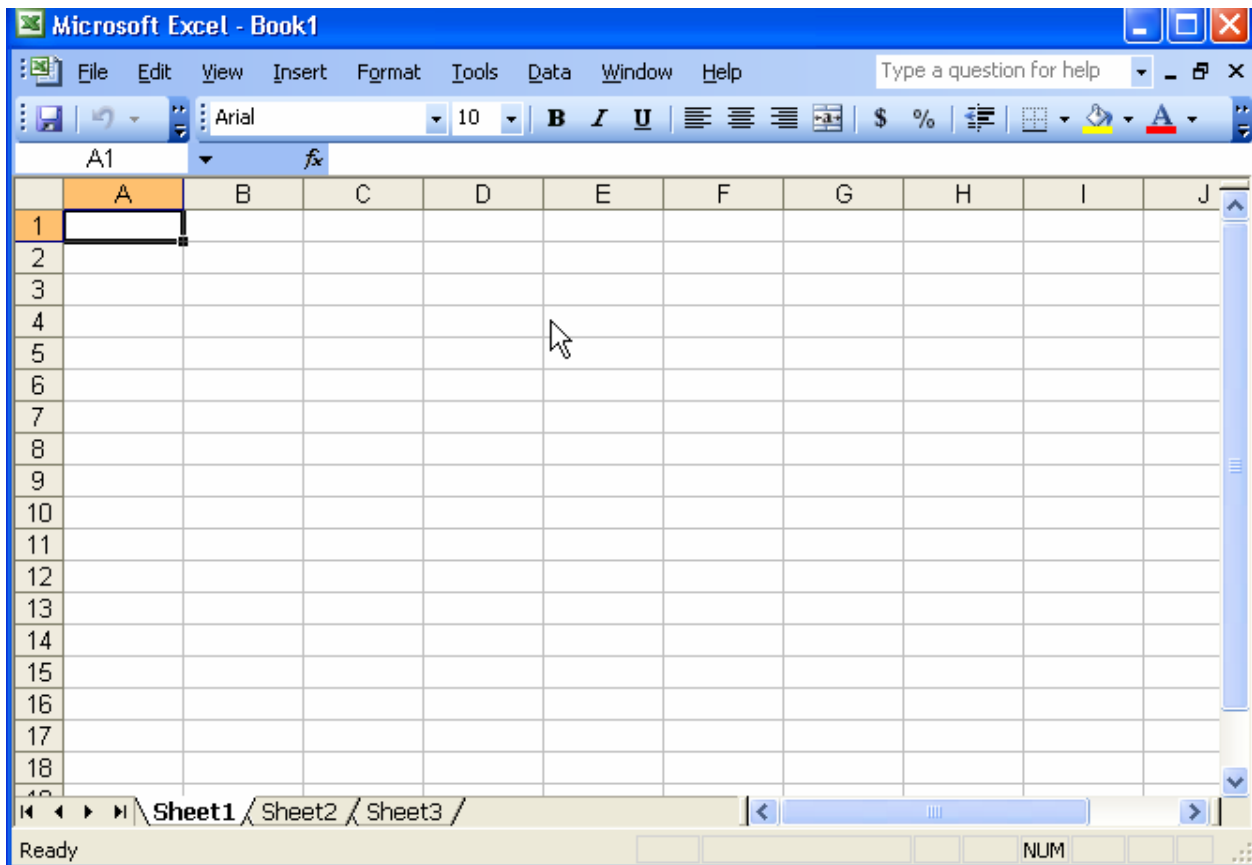
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Introduction

Excel is a spreadsheet program. It's the bean-counter of Office 2003. Excel activities include adding up budget totals, calculating sales commissions, totaling enrollment, figuring loan payments, and performing other math-oriented chores. Excel presents its' data as a large table that consists of rows and columns

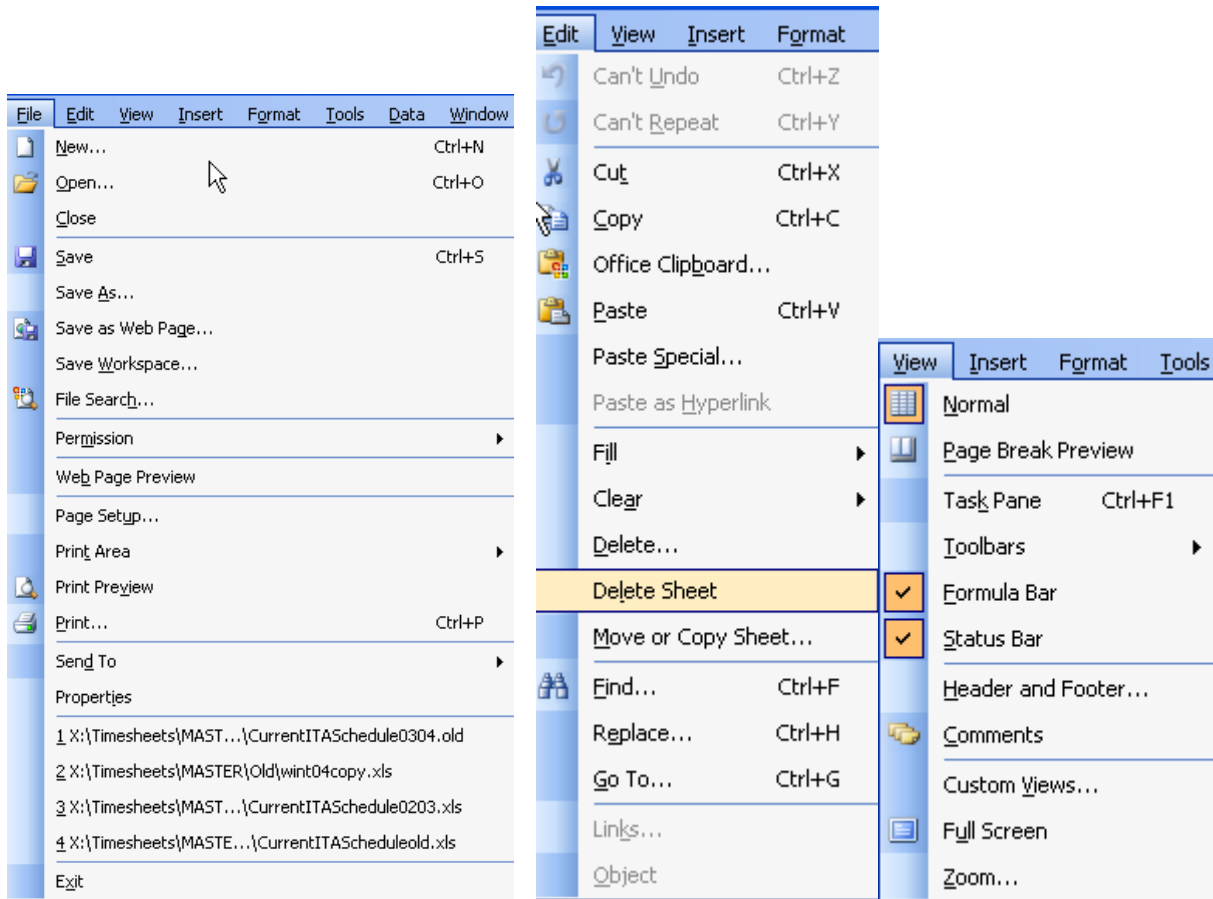
Excel Basics

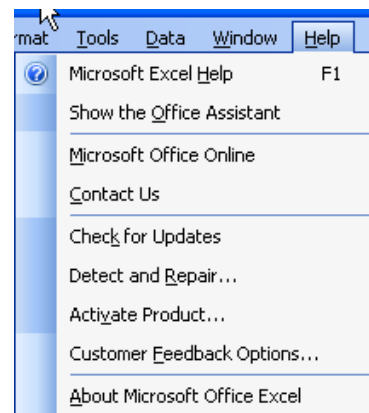
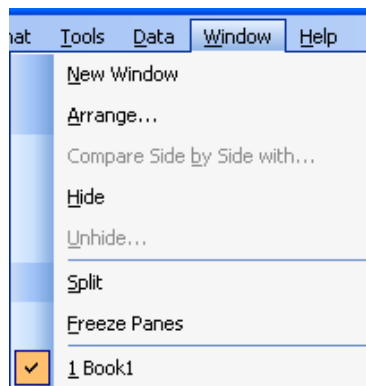
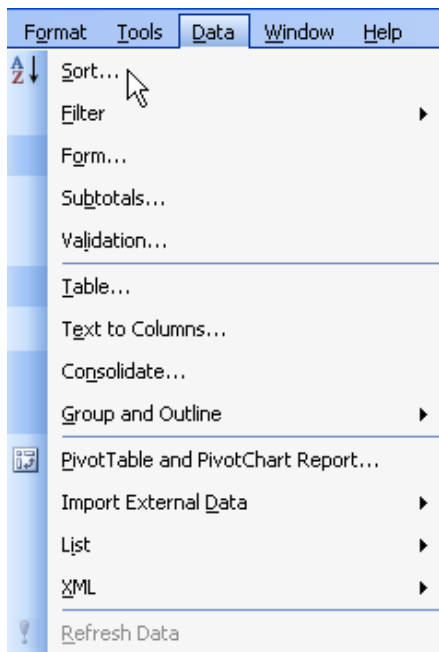
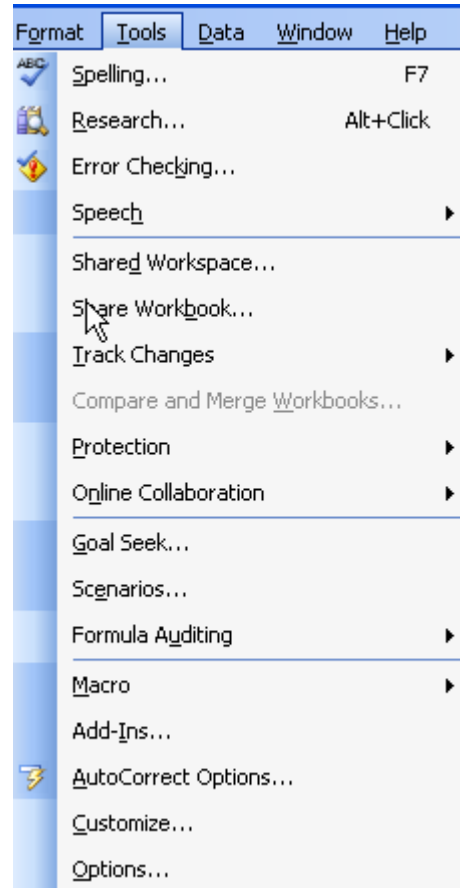
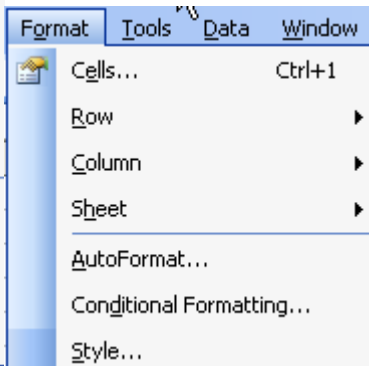
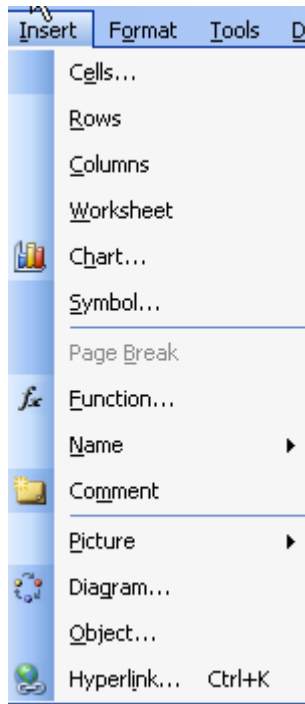
When you first open up Excel, the worksheet appears. The default window will have three worksheets present.



Menus

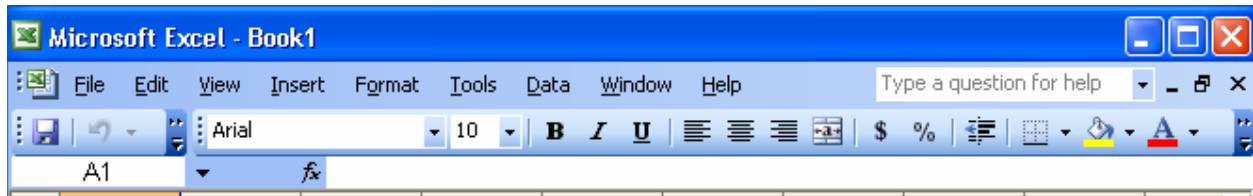
Menus are used to perform specific activities and functions in Excel. The following menus are within Excel:





Toolbars

Point to the toolbars and highlight each button on your toolbars to view a description.

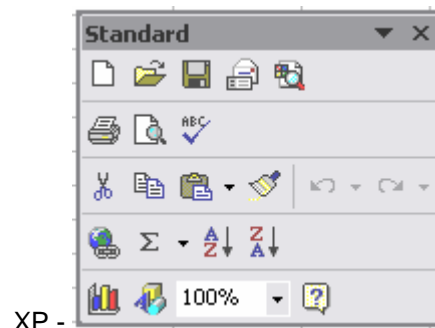


Toolbars are used for quick access to functions. Toolbars can be either “anchored” to one edge of the screen or “floating” at any position on the screen. They can also be customized and/or created from scratch.

Moving Toolbars

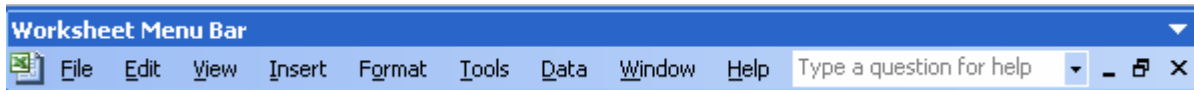
There are several methods of moving toolbars:

1. Click on the toolbar's title bar and drag the toolbar. The bar can be moved to any location on the screen. When the toolbar is away from the stationary position, the bar will float and can be moved around by the click and drag method on the title bar.



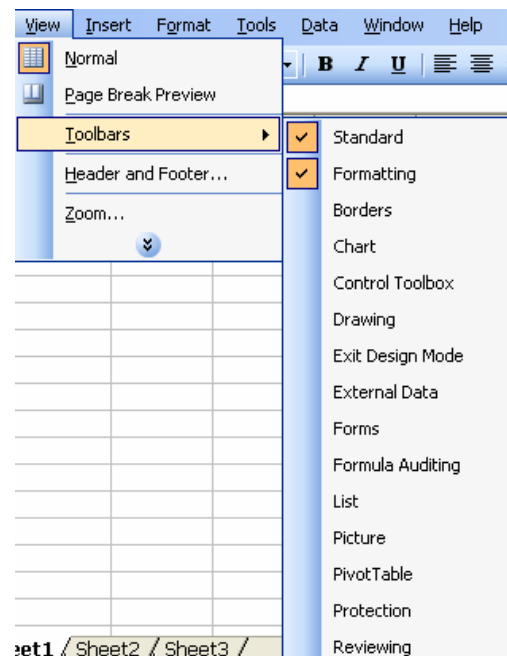
XP -

2003 -



Adding and Removing Toolbars To add a toolbar to the desktop:

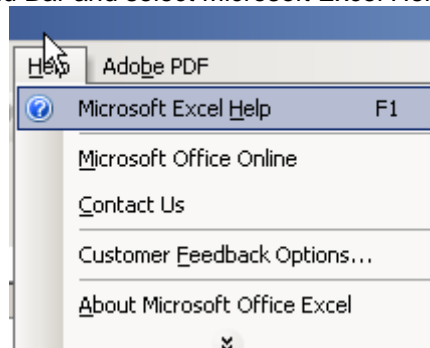
1. Select View > Toolbars, then check a desired toolbar from the list.
2. When a toolbar has a check mark by it in the View > Toolbars menu, then it is on the desktop. To remove a floating toolbar from the desktop, click on the close button at the upper right corner on the toolbar's title bar or uncheck the toolbar by going to the View > Toolbars menu, and clicking on the toolbar to uncheck it.



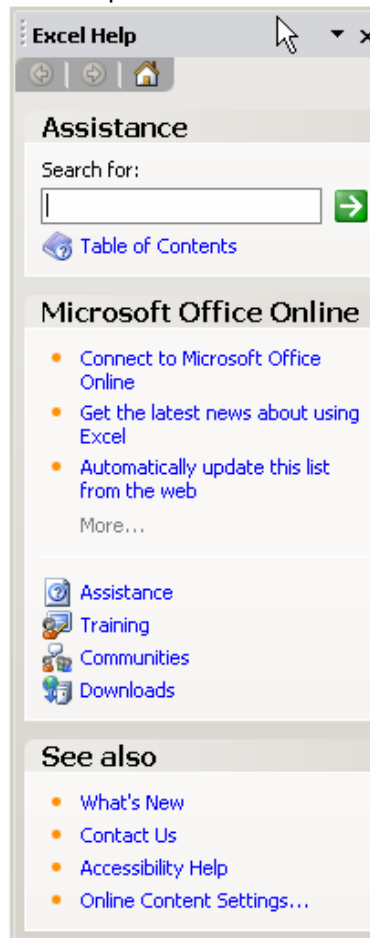
Getting Help

If you run into a problem while using Excel there are a number of things you can do to get some additional help.

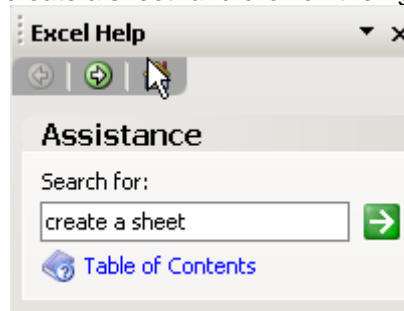
1. Press the F1 key. That is the key that is located at the top left side of your keyboard. The F1 key is above the number 2 and @ key.
2. Go to Help up on the Menu Bar and select Microsoft Excel Help.



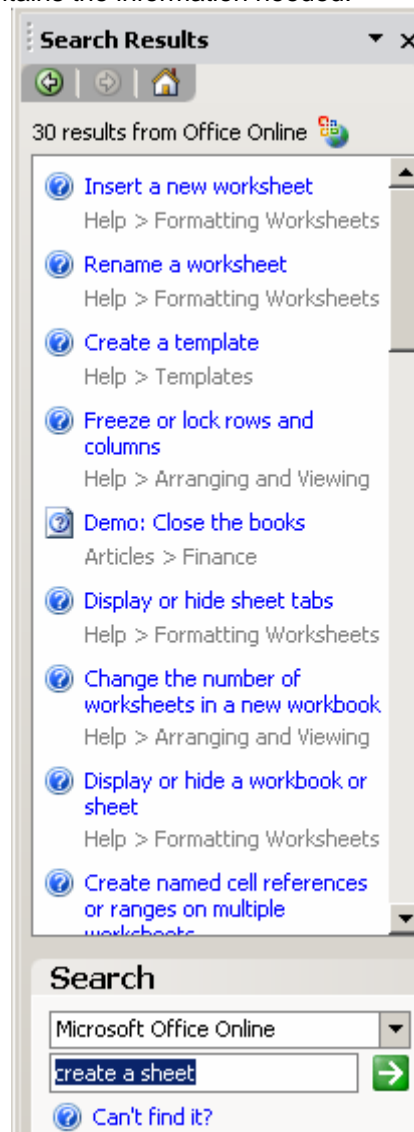
3. The help tasks are shown in the task pane.



- In the Search for: field, type "create a sheet" and click on the right arrow.



- The following information may appear depending upon the question asked. For help instructions, click on the blue link that contains the information needed.



For additional help, a search may be done at Microsoft on-line or anywhere on the Internet as well.

Moving around in the Excel worksheet

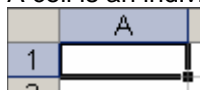
Keep this cheat sheet handy!

(Reminder: Save often or shortcuts and subtotals may not be correct.)

To move from one cell to another cell using the keyboard	
Press this	To move:
→	One cell to the right
←	One cell to the left
↓	One cell down
↑	One cell up
Ctrl + →	To the right hand edge of the current region
Ctrl + ←	To the left hand edge of the current region
Ctrl + ↓	To the bottom edge of the current region
Ctrl + ↑	To the top edge of the current region
Home	To the first cell in the row
Ctrl + Home	To the first cell in the worksheet
Ctrl + End	To the lowest right hand cell in the worksheet that contains a data entry
Page Down	One screen down
<i>Page Up</i>	One screen up
Alt + PgDn	One screen to the right
Alt + PgUp	One screen to the left
To move within a selected range	
Tab	To the right one cell
Shift + Tab	To the left on cell
Enter	One cell down
Shift + Enter	One cell up
Keyboard Shortcuts	
Alternate between displaying cell values and displaying cell formulas	CTRL+` (single left quotation mark)
Calculate the active worksheet	SHIFT+F9
Copy	CTRL+C
Create a chart that uses the current range	F11 or ALT+F1
Display the Format Cells dialog box	CTRL+1
Display the Go To dialog box	F5
Insert the current time	CTRL+:
Insert today's date	CTRL+;
Open	CTRL+O
Paste	CTRL+V
Print	CTRL+P
Save	CTRL+S
Select all (when you are not entering or editing a formula)	CTRL+A
Select the current column	CTRL+SPACEBAR
Select the current row	SHIFT+SPACEBAR

Worksheet Basics
 Rows, Columns and Cells

A cell is an individual box within the worksheet where data is entered. Worksheets consist of several cells.



Rows go across the worksheet from left to right

	A	B	C	D
1		March	April	May
2	Susan	12555	16545	16548
3				
4				
5				

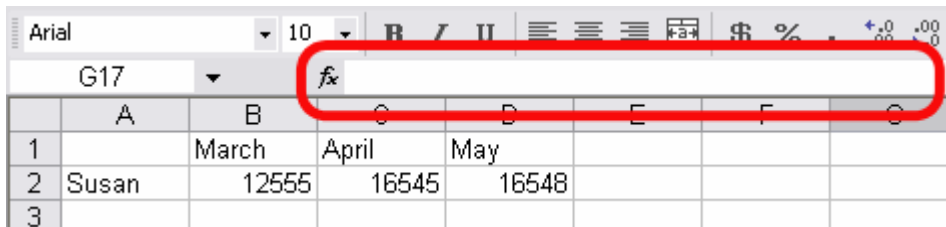
Columns go top to bottom

	A	B	C	D
1		March	April	May
2	Susan	12555	16545	16548
3				
4				
5				
6				

Cells are identified by their location using a number and letter system. For example, the cell shown in the following figure is "C2."

	A	B	C	D
1		March	April	May
2	Susan	12555	16545	16548
3				

The formula bar is used for entering data and formulas.

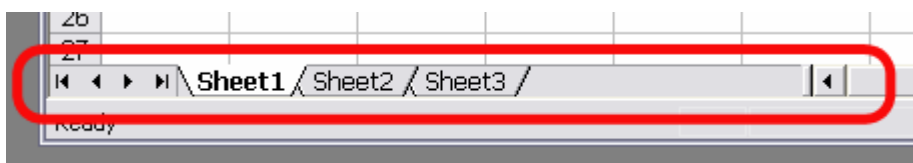


The following worksheet shows cell B3.

	A	B	C	D
1		March	April	May
2	Susan	12555	16545	16548
3		=B3		

Changing Worksheets

Every document in Excel contains three worksheets. You can add and remove worksheets as well.

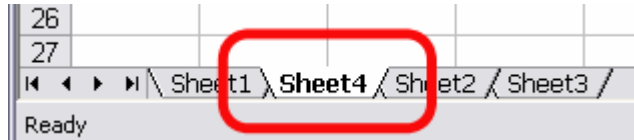


Adding, Moving and Deleting Sheets

Add a new sheet:

1. Select Insert > Worksheet (You may also right-click on a sheet and click insert.)

Be careful what sheet you have highlighted. The following may occur:

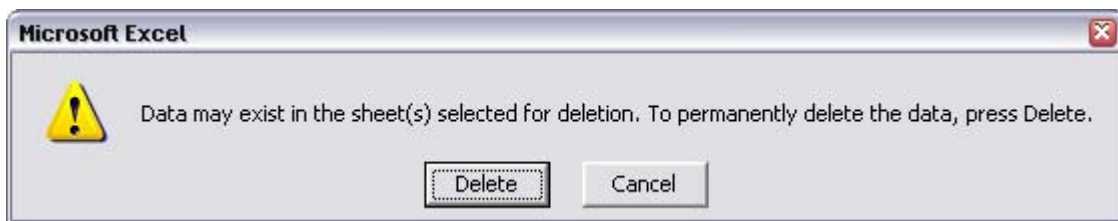


To move a worksheet:

2. Select worksheet 4 until you get an arrow and a picture of paper.
2. Drag with your mouse sheet 4 and drop after sheet 3.
3. The sheets are now in numerical order.

To delete a worksheet:

1. Highlight sheet 4 and Select Edit > Delete Sheet
2. You may be prompted to permanently delete the sheet. Click OK.



Note: You may also right-click on the sheet and click on delete. There is no extra prompt to delete a sheet.

Data Entry

Perform the following functions:

1. Click on a cell
2. Move through the sheet with arrow keys.
3. Use the tab key to move forward (hold shift and press tab to move backwards)
4. Pressing Enter will highlight the cell in the next row directly under the cell you originally highlighted.
5. Enter the number 30 in cell b2 on worksheet 1. Complete the worksheet as shown below.

	A	B	C
1		Total Students	Classes
2		30	2
3		20	1
4		15	1
5		25	2
6		22	3
7		40	2

Once the data for a cell has been entered, you can do any of the following: Select the return key, arrow key or tab key to proceed to another cell.

1. Select Sheet 2 and enter more data. Be careful to put your information in the correct rows and columns. Use the example below for the new data.

	A	B
1		Students
2	Word	10
3	Excel	15
4	PowerPoint	18
5	Windows	20
6	Mac OS	12

This worksheet shows that there are a specific number of students in each class type. Save your file.


Go back to worksheet1 and edit some cells:

1. Click on cell b2 and type over existing data with 10
2. Double click cell b3 and change to 50.
3. Select cell b4 and make all changes from within the formula bar to 20

	A	B	C	D
1		Total Students	Classes	
2		10	2	
3		50	1	
4		20	1	
5		25	2	
6		22	3	
7		40	2	

Note: to delete the contents of a cell you can click the space bar, use the backspace or click the delete key. Save your workbook.

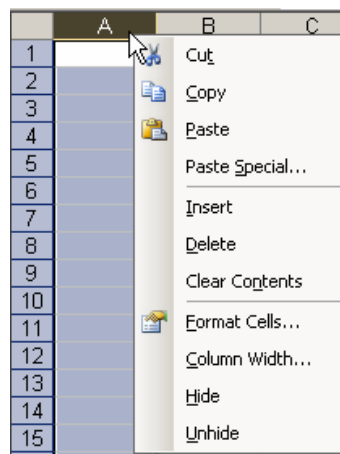
More practice

1. Open a new workbook.
 - a. Select the new workbook icon from the standard toolbar 
 - Or
 - b. Go to File → New
2. Rename Sheet 1 to Practice
 - a. Double click on the Sheet 1 tab and type Practice (or, right-click and select rename)
3. Delete Sheet2 and Sheet3
 - a. Hold the Ctrl key and highlight Sheet 2 and Sheet 3 tabs. Release the Ctrl key, right-click and select Delete

4. Enter the following information on Practice sheet.

	A	B	C	D
1	12	74	56	
2	15	63	83	
3	36	12	27	
4	87	36	41	
5	52	14	28	
6				
7				

5. Add a column to the left of the worksheet (A1).
- Click on the letter A at the top of the first column. This will highlight the entire column.
 - Right click on the letter A at the top of the selected column.
 - Select Insert

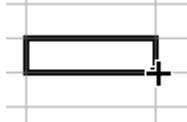




6. Add two rows to the top of this worksheet.
- Left click and drag across the row numbers 1 and 2 to the left of your worksheet. This will highlight both rows.
 - Right click on the heading 1 or 2
 - Select insert



7. In cell A1 type in Widgets
8. In cell B2 type in January
9. In cell A3 type in Store 1

Fill Handle: move your mouse to the lower right-hand corner of a cell to get the fill handle as shown. To use the fill handle, left mouse click and hold, drag until you reach the last cell to copy.



10. Using the fill handle copy the month headings until you get March
11. Using the fill handle copy the stores down the rows until you get Store5.
12. In cell A9 type in Totals
13. In cell E2 type in Totals
14. Resize the columns
 - a. Columns and rows can be resized by putting your cursor between two column or row headings until the cursor changes into a two headed cursor then left clicking and dragging the rows or columns to the size you want
 - Or
 - b. Double clicking on the line between the columns or row headers
15. Merge and center the table title by dragging across cells A1 to F1
 - a. Select the Merge and Center button from the formatting toolbar 
16. Bold the word Widgets by selecting the word and clicking on the Bold button on the formatting toolbar 

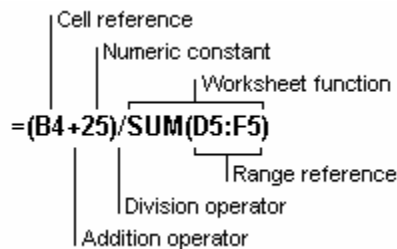
Your workbook should look like the following:

	A	B	C	D	E
1	Widgets				
2		January	February	March	Totals
3	Store1	12	74	56	
4	Store2	15	63	83	
5	Store3	36	12	27	
6	Store4	87	36	41	
7	Store5	52	14	28	
8					
9	Totals				

For more practice, insert another sheet and enter the same information. Use only the keyboard to move between cells. Save the worksheet.

Formulas

A formula is an equation that performs operations on worksheet data. Formulas can perform mathematical operations, such as addition and multiplication, or they can compare worksheet values or join text. Formulas can refer to other cells on the same worksheet, cells on other sheets in the same workbook, or cells on sheets in other workbooks. The following example adds 25 to the value in cell B4 and then divides the result by the sum of the values in cells D5, E5, and F5.



Formulas calculate values in a specific order. A formula in Microsoft Excel always begins with an equal sign (=). The equal sign tells Excel that the succeeding characters constitute a formula. Following the equal sign are the elements to be calculated (the operands), which are separated by calculation operators. Excel calculates the formula from left to right, according to a specific order for each operator in the formula. You can change the order of operations by using parentheses.

In the example below, the parentheses around the first part of the formula force Excel to calculate `B4+25` first and then divide the result by the sum of the values in cells D5, E5, and F5.

`=(B4+25)/SUM(D5:F5)`

Order of operations: parentheses, exponents, multiplication, division, addition and subtraction.

Calculation operators in formulas

Operators specify the type of calculation that you want to perform on the elements of a formula. Microsoft Excel includes four different types of calculation operators: arithmetic, comparison, text, and reference.

Arithmetic operators To perform basic mathematical operations such as addition, subtraction, or multiplication; combine numbers; and produce numeric results, use the following arithmetic operators.

Arithmetic operator	Meaning	Example
+ (plus sign)	Addition	3+3
- (minus sign)	Subtraction Negation	3-1 -1
* (asterisk)	Multiplication	3*3
/ (forward slash)	Division	3/3
% (percent sign)	Percent	20%
^ (caret)	Exponentiation	3^2 (the same as 3*3)

Comparison operators You can compare two values with the following operators. When two values are compared by using these operators, the result is a logical value, either TRUE or FALSE.

Comparison operator	Meaning	Example
= (equal sign)	Equal to	A1=B1
> (greater than sign)	Greater than	A1>B1
< (less than sign)	Less than	A1<B1
>= (greater than or equal to sign)	Greater than or equal to	A1>=B1
<= (less than or equal to sign)	Less than or equal to	A1<=B1
<> (not equal to sign)	Not equal to	A1<>B1

Text concatenation operator Use the ampersand (&) to join, or concatenate, one or more text strings to produce a single piece of text.

Text operator	Meaning	Example
& (ampersand)	Connects, or concatenates, two values to produce one continuous text value	"North" & "wind" produce "Northwind"

Reference operators Combine ranges of cells for calculations with the following operators.

Reference operator	Meaning	Example
: (colon)	Range operator, which produces one reference to all the cells between two references, including the two references	B5:B15
, (comma)	Union operator, which combines multiple references into one reference	SUM(B5:B15,D5:D15)

Practice 1

Using what you've learned about formulas, manually enter data in the following Widgets cells.

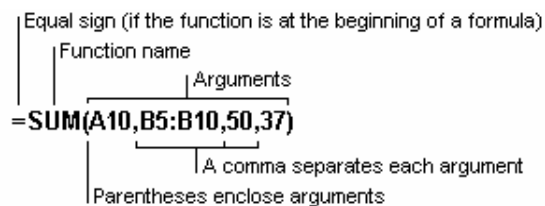
1. Type the formula needed in cell B9, C9, and D9
2. Type the formula needed in cell E3, E4, E5, E6, E7 and E9
3. Type the formula needed in F3, F4, F5, F6, F7 and F9.
4. The worksheet totals should all add up correctly.

Functions

Functions are predefined formulas that perform calculations by using specific values, called arguments, in a particular order, or structure. For example, the SUM function adds values or ranges of cells, and the PMT function calculates the loan payments based on an interest rate, the length of the loan, and the principal amount of the loan (6% * 120pmts * Loan\$).

Arguments Arguments can be numbers, text, logical values such as TRUE or FALSE, arrays, error values such as #N/A, or cell references. The argument you designate must produce a valid value for that argument. Arguments can also be constants, formulas, or other functions.


Structure The structure of a function begins with the function name, followed by an opening parenthesis, the arguments for the function separated by commas, and a closing parenthesis. If the function starts a formula, type an equal sign (=) before the function.



In another worksheet, fill in the following information or use an existing copy.

	A	B	C	D	E	F	G
1	Widgets						
2		January	February	March	Total	Percent of Total	
3	Store 1	12	74	56			
4	Store 2	15	63	83			
5	Store 3	36	12	27			
6	Store 4	87	36	41			
7	Store 5	52	14	28			
8							
9	Total						
10							

Use AutoSum to add the columns and rows.


1. Select cell B9
2. Select the AutoSum button from the standard toolbar 
3. Select enter
4. Using the fill handle and copy the formula to the other cells. (click and drag)



5. Do the same thing to total each row.
6. Delete the 0 in cell E8

Creating a percent of total

1. Select cell F3

2. In the formula bar enter =E3/E9
 - a. To activate the cell select enter
3. To convert the decimal to a percentage
 - a. Highlight the cell and select the percent icon from the formatting toolbar 
4. Now copy the formula down
5. WHAT HAPPENED? Did you get #DIV/0!? Read on!

Relative and Absolute References

Relative vs. absolute references Depending on the task you want to perform in Excel, you can use either relative cell references, which are references to cells relative to the position of the formula, or absolute references, which are cell references that always refer to cells in a specific location. If a dollar sign precedes the letter and/or number, such as \$A\$1, the column and/or row reference is absolute. Relative references automatically adjust when you copy them, and absolute references don't.

Relative references In the following example, cell B6 contains the formula =A5; Microsoft Excel finds the value one cell above and one cell to the left of B6. This is known as a relative reference.

	A	B
5	100	
6	200	=A5
7		

	A	B
5	100	
6	200	100
7		

When you copy a formula that uses relative references, Excel automatically adjusts the references in the pasted formula to refer to different cells relative to the position of the formula. In the following example, the formula in cell B6, =A5, which is one cell above and to the left of B6, has been copied to cell B7. Excel has adjusted the formula in cell B7 to =A6, which refers to the cell that is one cell above and to the left of cell B7.

	A	B
5	100	
6	200	100
7		=A6

	A	B
5	100	
6	200	100
7		200

Absolute references If you don't want Excel to adjust references when you copy a formula to a different cell use an absolute reference. For example, if your formula multiplies cell A5 with cell C1 (=A5*C1) and you copy the formula to another cell, Excel will adjust both references. You can create an absolute reference to cell C1 by placing a dollar sign (\$) before the parts of the reference that do not change. To create an absolute reference to cell C1, for example, add dollar signs to the formula as follows:

=A5*\$C\$1

Using the Widgets workbook, we need to make the second number in our formula absolute.

Cell F3 formula: 

1. Place the cursor in the second cell reference before (E9)
2. Select the F4 key at the top of your keyboard
3. Select enter
4. Now copy the formula down
5. Delete the 0 from cell F8
6. Your table should like the following:

	A	B	C	D	E	F	G
1	Widgets						
2		January	February	March	Total	Percent of Total	
3	Store 1	12	74	56	142	22%	
4	Store 2	15	63	83	161	25%	
5	Store 3	36	12	27	75	12%	
6	Store 4	87	36	41	164	26%	
7	Store 5	52	14	28	94	15%	
8							
9	Total	202	199	235	636	100%	
10							

The #DIV/0! error message should now be cleared. Repeat this exercise to get a better understanding of relative and absolute references.

Switching between relative and absolute references If you created a formula and want to change relative references to absolute (and vice versa), select the cell that contains the formula. In the formula bar, select the reference you want to change and then press F4. Each time you press F4, Excel toggles through the combinations: absolute column and absolute row (for example, \$C\$1); relative column and absolute row (C\$1); absolute column and relative row (\$C1); and relative column and relative row (C1). For example, if you select the address \$A\$1 in a formula and press F4, the reference becomes A\$1. Press F4 again and the reference becomes \$A1, and so on.

Examples of References

	A	B	C
1			
2			
3			

Formula being copied

Reference (Description)	Changes to
\$A\$1 (absolute column and absolute row)	\$A\$1
A\$1 (relative column and absolute row)	C\$1
\$A1 (absolute column and relative row)	\$A3
A1 (relative column and relative row)	C3

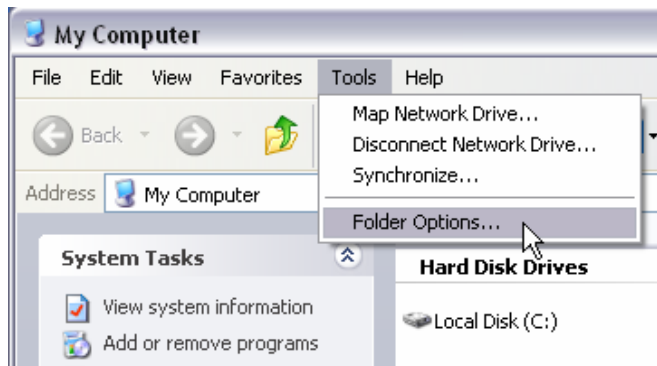
Tips

View Excel in another window.

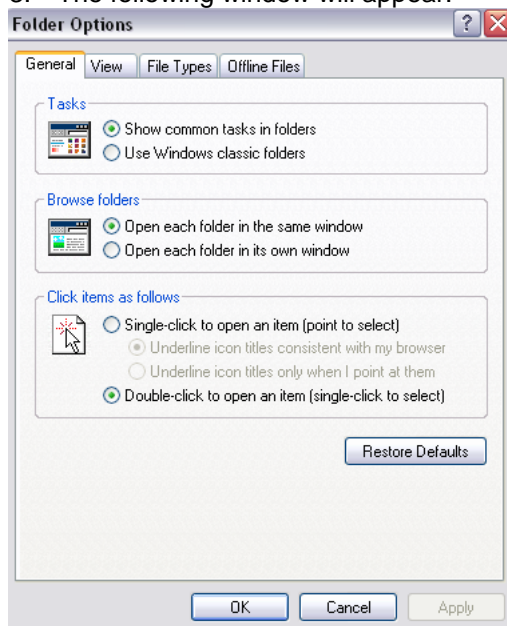
1. Open My computer



2. Select Tools and then folder options.



3. The following window will appear.



4. Make sure that Open each folder in its own window is selected. Select OK.

Paste Special

Instead of pasting information from the clipboard, you may use Paste Special to copy only specific parts.

1. Highlight the cell that contains the information you want to copy.
2. Select Edit and copy.
3. Select Edit and Paste Special. This function will allow you to paste the information in a different format.

For Example: Instead of copying all the cell information from cell B9 to cell C9 and D9, you can copy specific information available from the Paste Special window.

	A	B	C	D
1		A	B	C
2		1	2	3
3		2	4	6
4		3	6	9
5		4	8	12
6		5	10	15
7				
8				
9	Total	15	30	45
10				
11				
12				

Paste Special ? X

Paste

All Validation

Formulas All except borders

Values Column widths

Formats Formulas and number formats

Comments Values and number formats

Operation

None Multiply

Add Divide

Subtract

Skip blanks Transpose

Subtotaling

Always save the document before subtotaling. Your numbers may not add up correctly while analyzing data. For more information, see Microsoft Excel Help "subtotal". The various types of subtotaling are beyond the scope of this class.

SUBTOTAL

Returns a subtotal in a list or database. It is generally easier to create a list with subtotals using the **Subtotals** command (**Data** menu). Once a subtotal list is created, you can modify it by using the SUBTOTAL function.

Syntax

SUBTOTAL(function_num, ref1, ref2, ..)

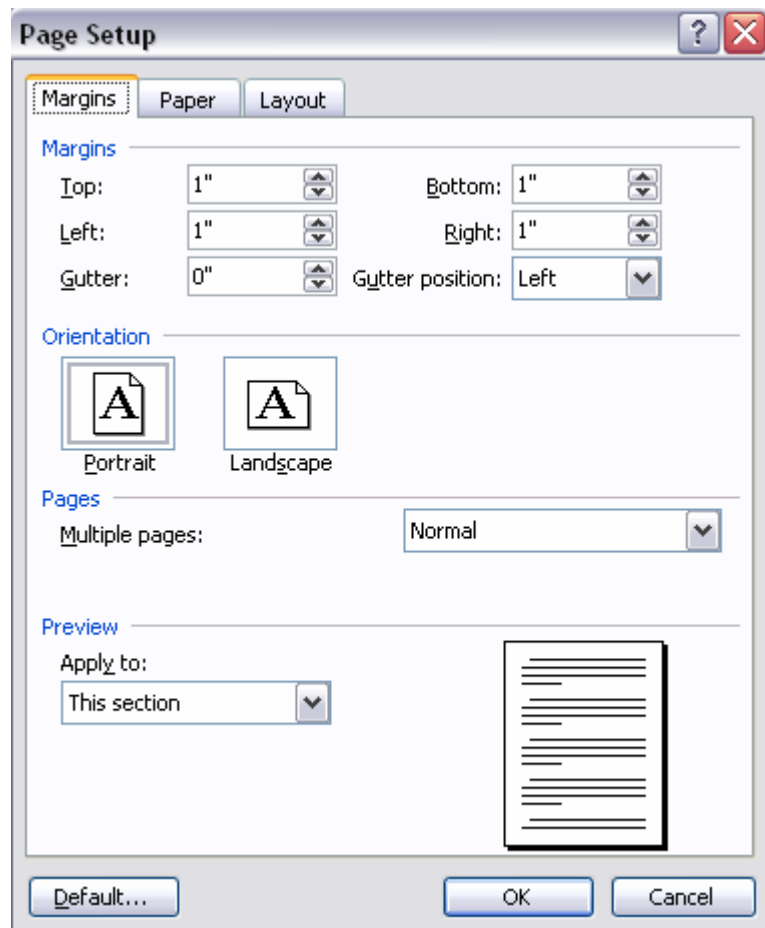
Function_num is the number 1 to 11 (includes hidden values) or 101 to 111 (ignores hidden values) that specifies which function to use in calculating subtotals within a list.

Function_num (includes hidden values)	Function_num (ignores hidden values)	Function
1	101	Average

Page Setup to fix Margins.

If your Excel document needs to be adjusted for printing, then use specific settings in Page Setup.

1. Select File and then Page Setup.
2. Select the Margins tab.



3. You will notice that under the category called, "margins", you will find the settings for the various sides of your document. You can also change the Orientation if necessary.

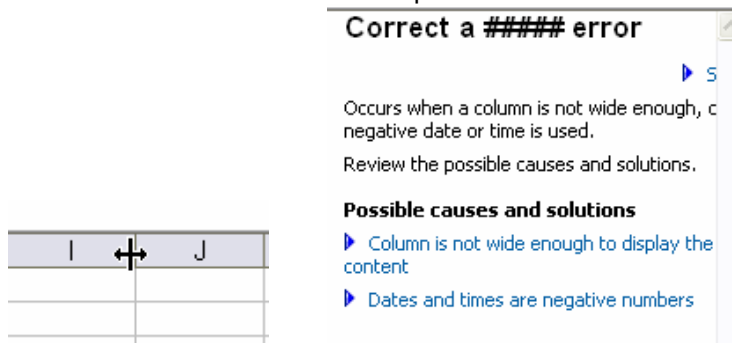
Correcting Errors

Take advantage of Microsoft Office Help whenever you have a question or problem about Excel. Use the most common word, title or phrase for your question or problem.

For example: If you see a # sign in a cell, go to the Help and use English version "pound sign" for the search.

Error in a cell

The problem is most likely that the cell is too narrow for the information to fit. Put your cursor between the two columns to get the cross-arrow and double-click the column to resize. You may also follow the directions listed in the Microsoft Excel help.




#DIV/0! Error in a Cell

There are many possibilities for getting a #DIV/0! error in a cell. For the best solution, follow the instructions in Microsoft Excel help.

Correct a #DIV/0! error

Occurs when a number is divided by zero (0).

1. Click the cell that displays the error, click the button that appears , and then click **Trace Error** if it appears.
2. Review the possible causes and solutions.

Possible causes and solutions

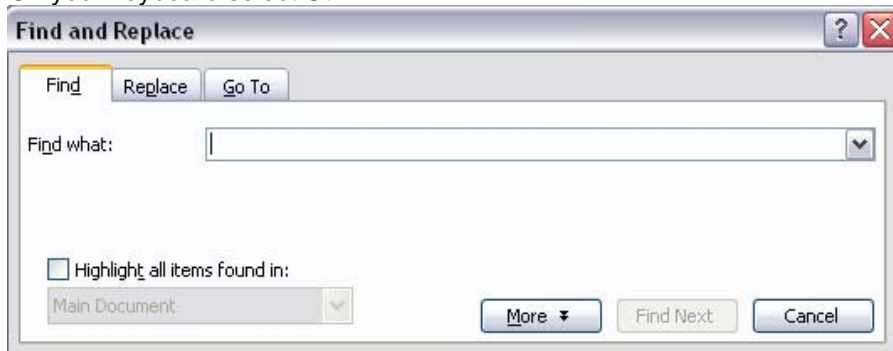
- ▶ Entering a formula that contains explicit division by zero (0)—for example, =5/0
- ▶ Using the cell reference to a blank cell or to a cell that contains zero as a divisor
- ▶ Running a macro that uses a function or a formula that returns #DIV/0!

Find

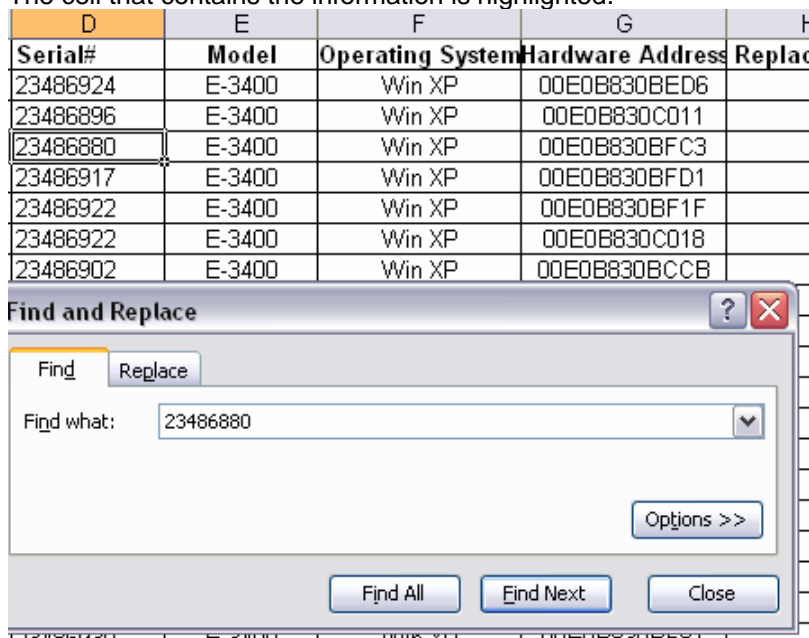
Are you ever trying to locate something in a very large Excel spreadsheet and it takes forever? Use Windows Find and Replace feature. This function will not only find what you want in the spreadsheet, but can replace it with another option as well.

1. Open a spreadsheet

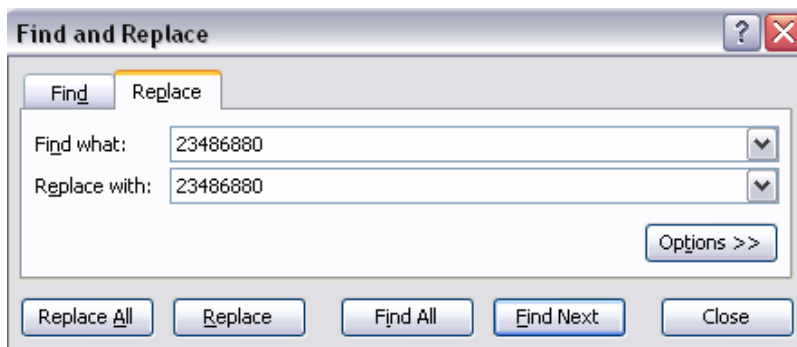
- On your keyboard select Ctrl + F.



- Type in what you want to find and select Find Next.
- For this example, I would type 23486880 and select Find Next.
- The cell that contains the information is highlighted.



- If I wanted to replace the information, then select the Replace tab. You may find and replace at the same time by selecting Replace.




#value Error in a Cell

There are many possibilities for getting a #value error in a cell. For the best solution, follow the instructions in Microsoft Excel help.

Correct a #VALUE! error

Occurs when the wrong type of [argument](#) or [operand](#) is used.

1. Click the cell that displays the error, click the button that appears , and then click **Trace Error** if it appears.
2. Review the possible causes and solutions.

Possible causes and solutions

- ▶ Entering text when the formula requires a number or a logical value, such as TRUE or FALSE
- ▶ Entering or editing an array formula, and then pressing ENTER
- ▶ Entering a cell reference, a formula, or a function as an array constant
- ▶ Supplying a range to an operator or a function that requires a single value, not a range
- ▶ Using a matrix that is not valid in one of the matrix worksheet functions
- ▶ Running a macro that enters a function that returns #VALUE!