

# MS EXCEL



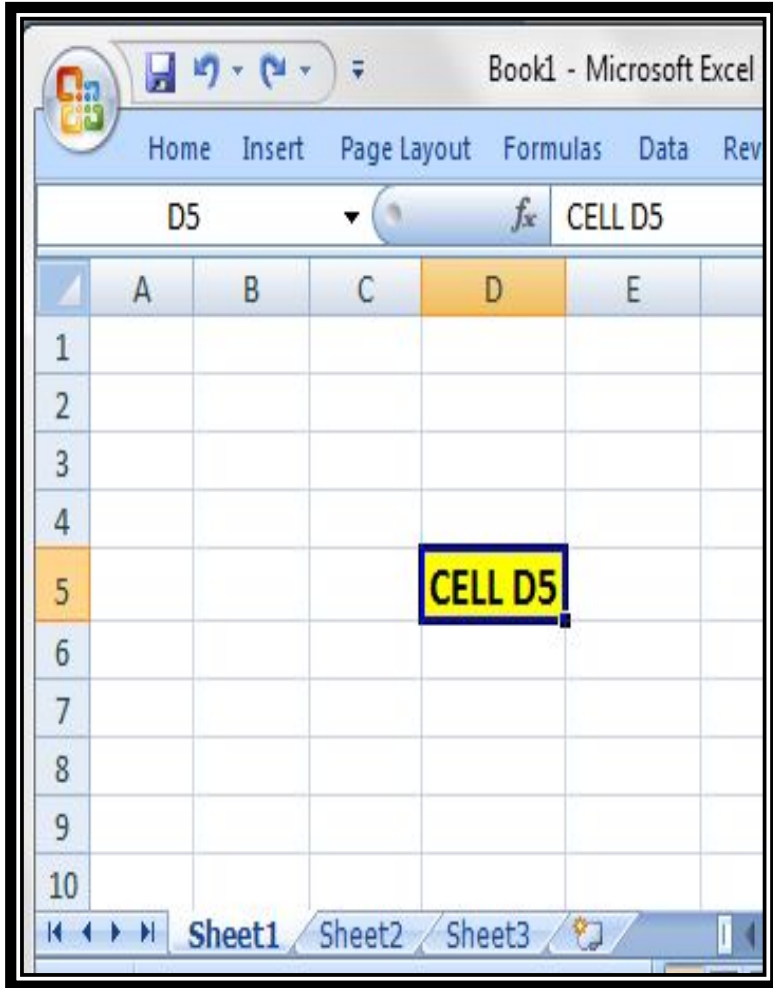
25-02-2017

MS EXCEL

# INTRODUCTION TO MS EXCEL

- ❑ Excel is a computer program used to create electronic spreadsheets.
- ❑ Within excel user can organize data, create chart and perform calculations.
- ❑ Excel is a convenient program because it allow user to create large spreadsheets, reference information, and it allows for better storage of information.
- ❑ Excel operates like other Microsoft(MS) office programs and has many of the same functions and shortcuts of other MS programs.

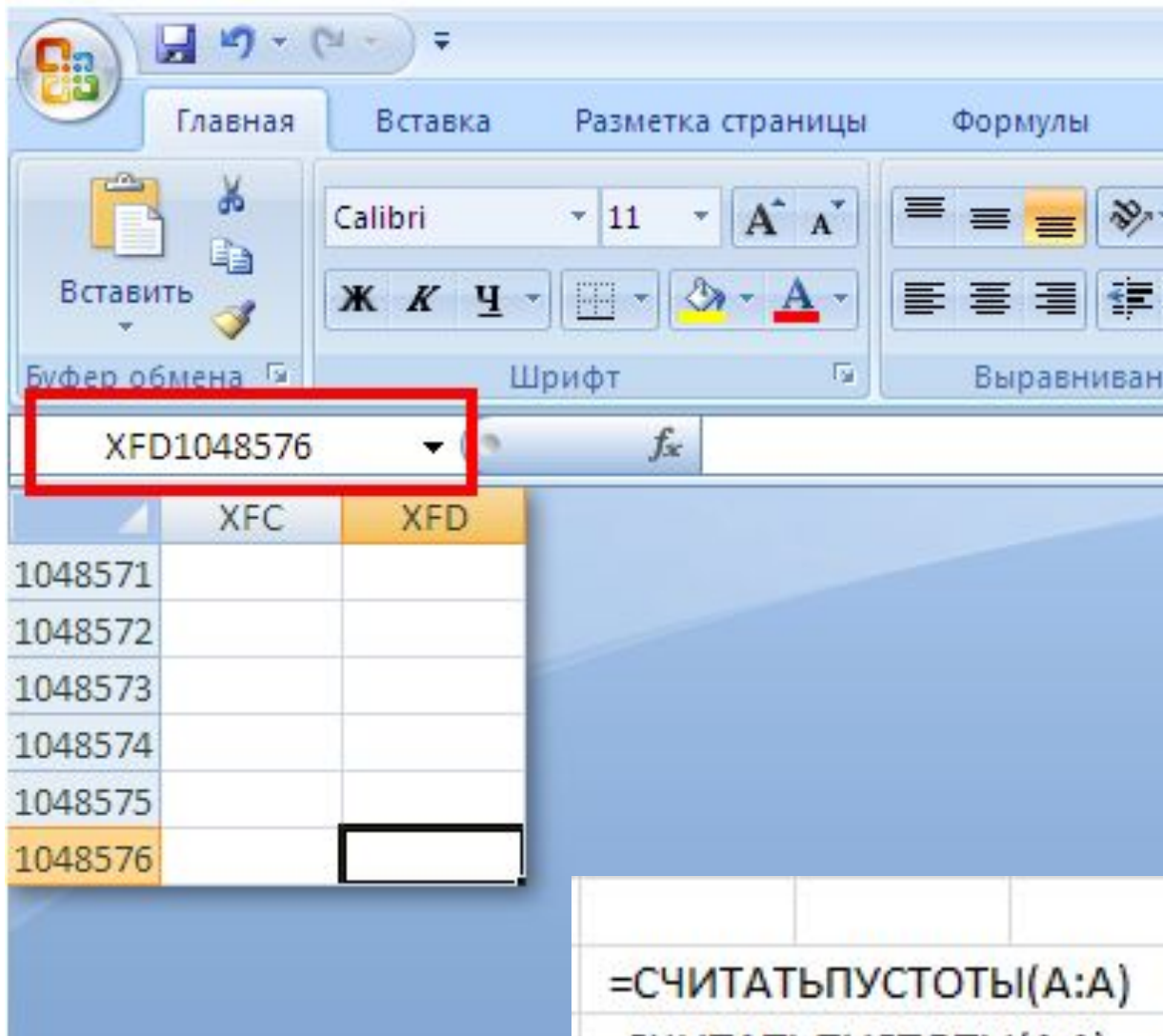
# OVERVIEW OF EXCEL



Excel consists of sheets with columns and rows.

Columns are lettered alphabetically from A to Z and then continuing with AA, AB, AC and so on; rows are numbered 1 to 1,048,576.

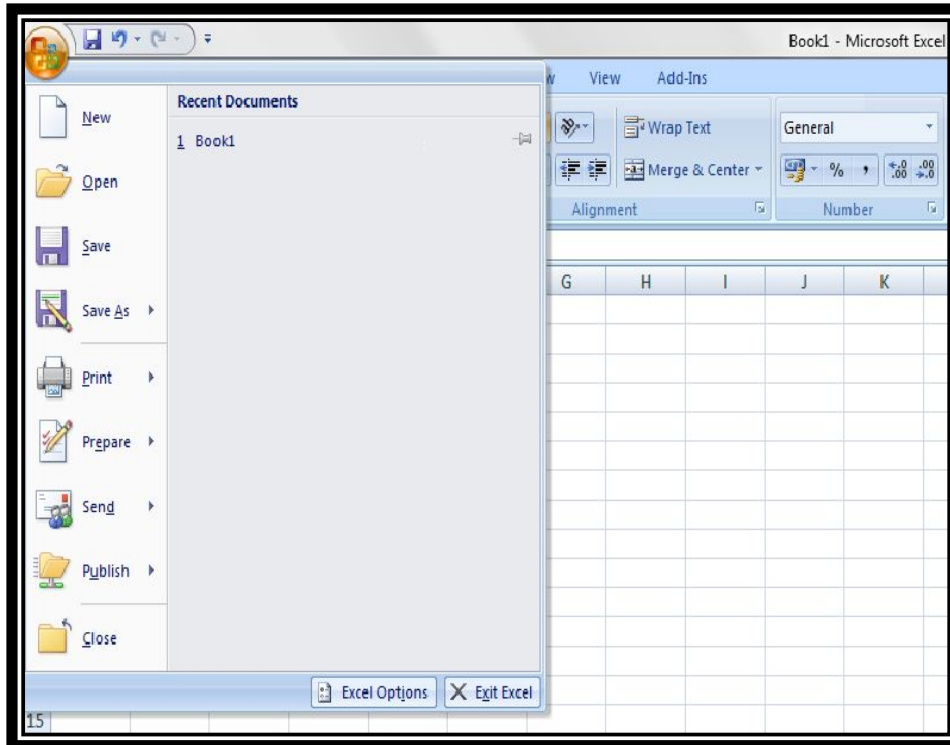
Combination of a row and a column makes up a cell address. For example cell D5 is located under column D on row 5.














## OFFICE BUTTON

### OFFICE BUTTON CONTAINS

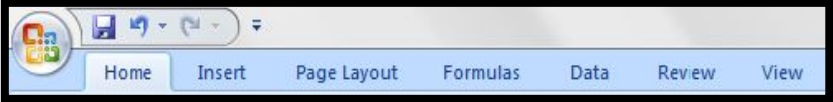


-  NEW-TO OPEN NEW WORKBOOK (CTRL+N)
-  OPEN-TO OPEN EXISTING DOCUMENT (CTRL+O)
-  SAVE-TO SAVE A DOCUMENT (CTRL+S)
-  SAVE AS-TO SAVE COPY DOCUMENT (F12)
-  PRINT-TO PRINT A DOCUMENT (CTRL+P)
-  PREPARE-TO PREPARE DOCUMENT FOR DISTRIBUTION
-  SEND-TO SEND A COPY OF DOCUMENT TO OTHER PEOPLE
-  PUBLISH-TO DISTRIBUTE DOCUMENT TO OTHER PEOPLE
-  CLOSE-TO CLOSE A DOCUMENT (CTRL+W)

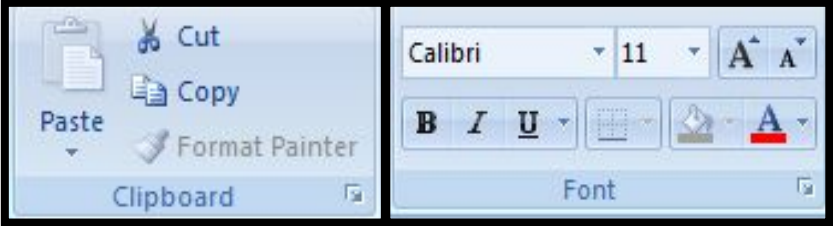
# RIBBON

THE THREE PARTS OF THE RIBBON ARE

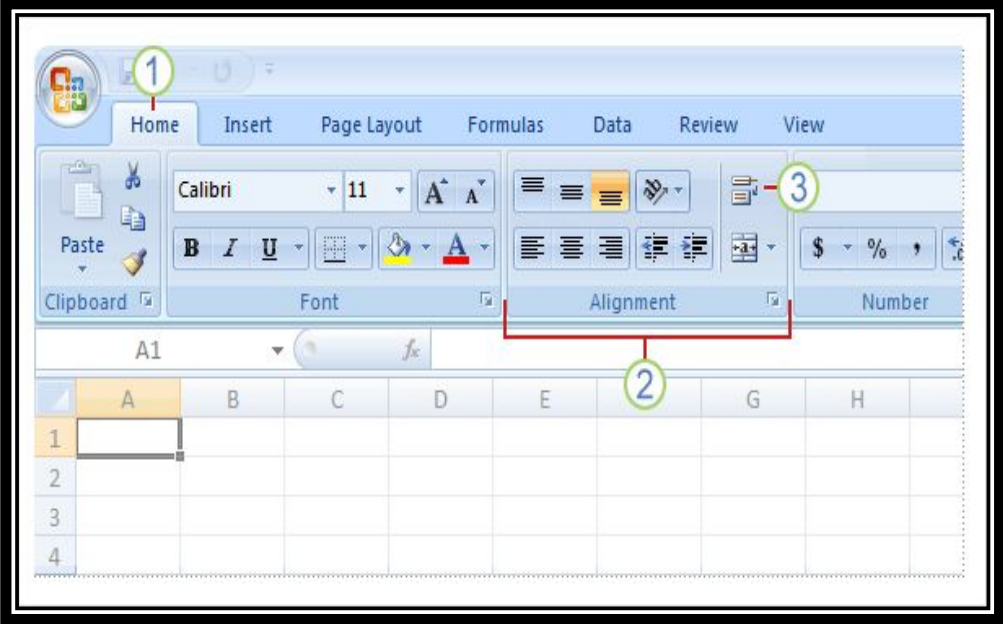
## TABS



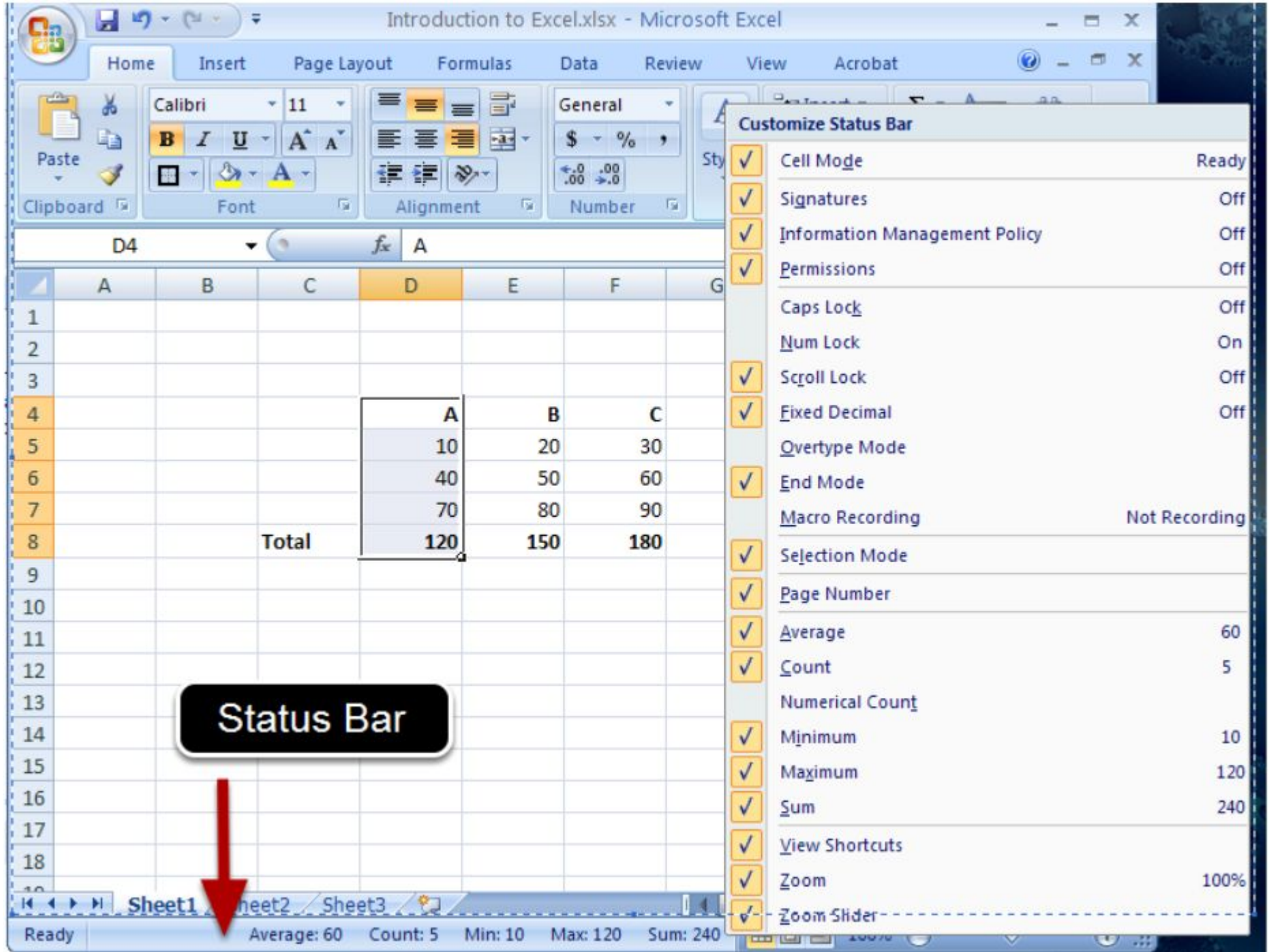
## GROUPS



## COMMANDS







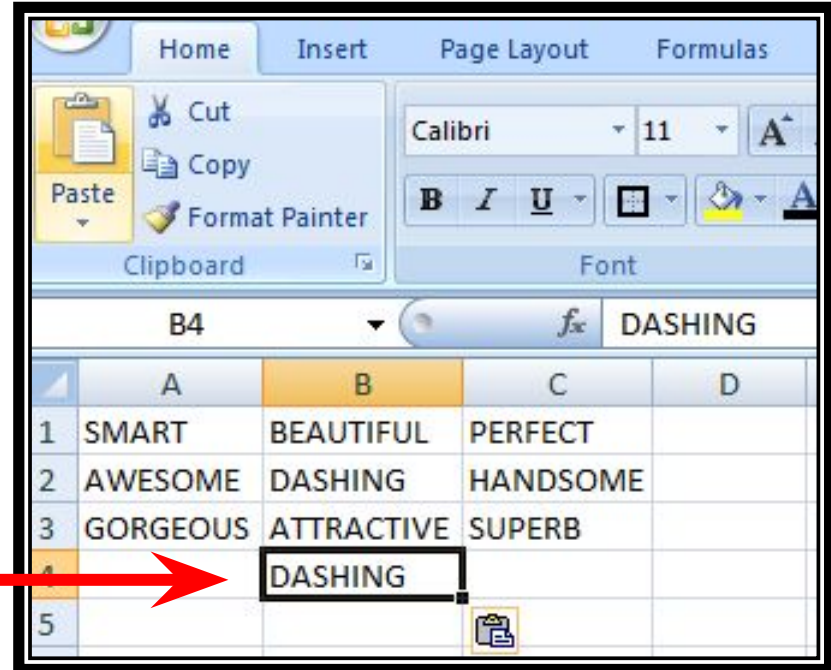
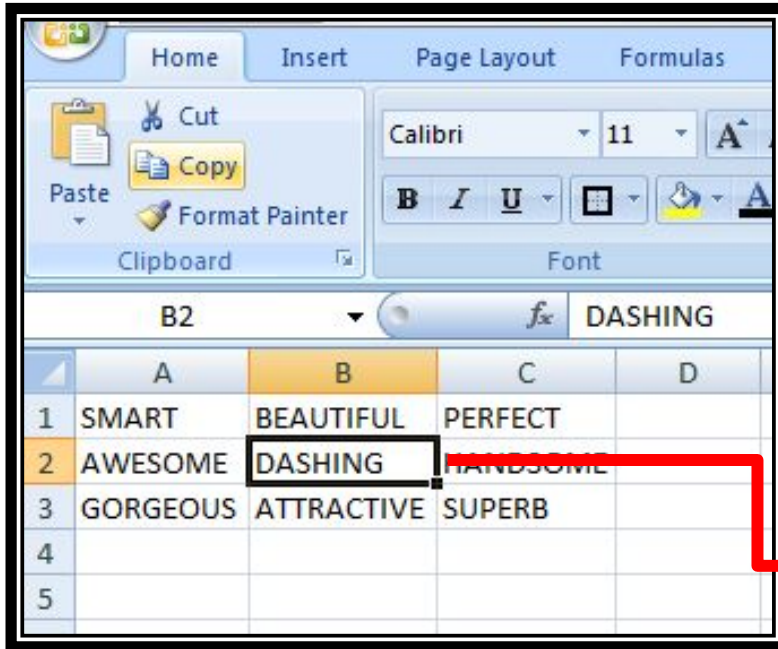
- ### Customize Status Bar
- Cell Mode Ready
  - Signatures Off
  - Information Management Policy Off
  - Permissions Off
  - Caps Lock Off
  - Num Lock On
  - Scroll Lock Off
  - Fixed Decimal Off
  - Overtype Mode
  - End Mode
  - Macro Recording Not Recording
  - Selection Mode
  - Page Number
  - Average 60
  - Count 5
  - Numerical Count
  - Minimum 10
  - Maximum 120
  - Sum 240
  - View Shortcuts
  - Zoom 100%
  - Zoom Slider

Status Bar



Ready Average: 60 Count: 5 Min: 10 Max: 120 Sum: 240

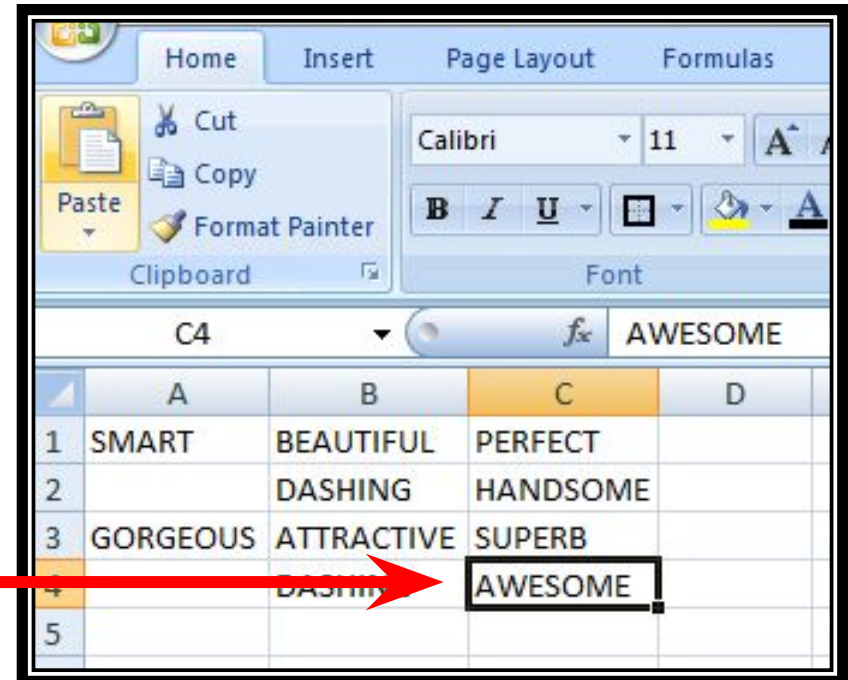
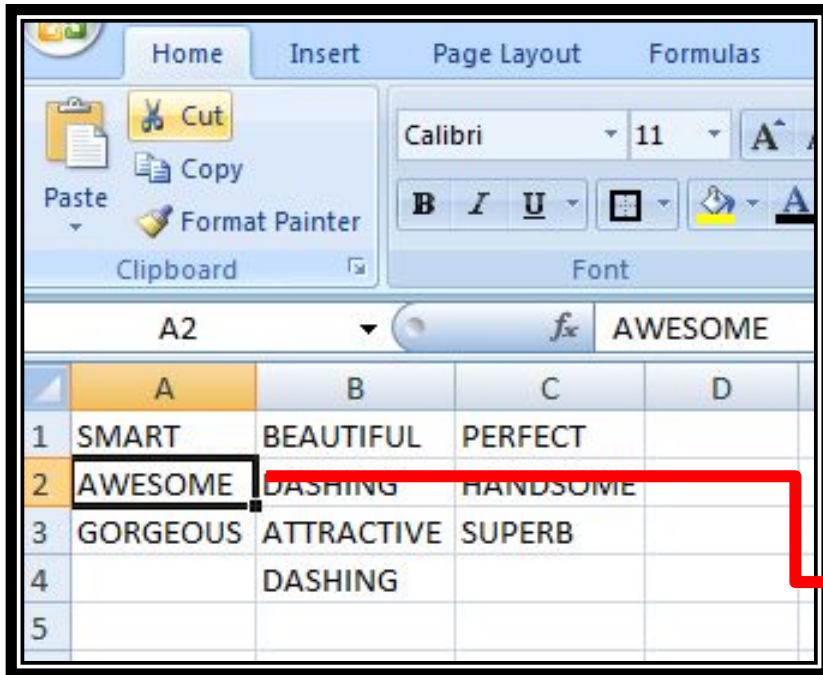
# WORKING WITH CELLS



**TO COPY AND PASTE CONTENTS**

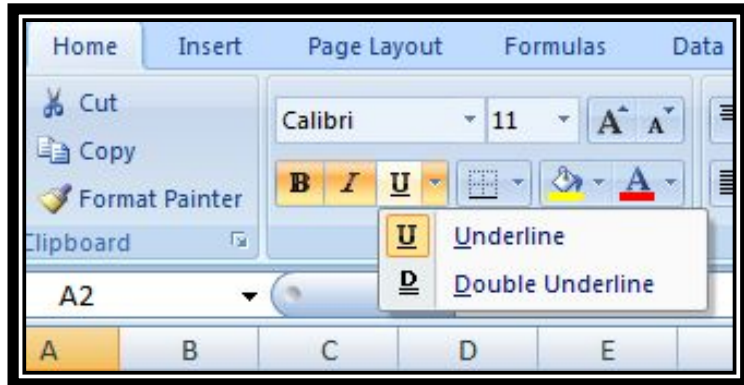


# WORKING WITH CELLS

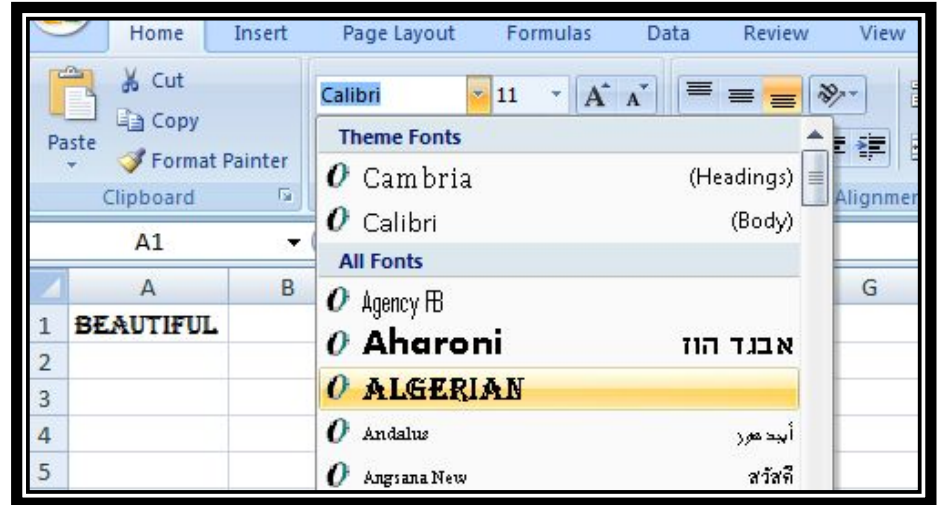


**To Cut and Paste Cell Contents**

# FORMATTING TEXT

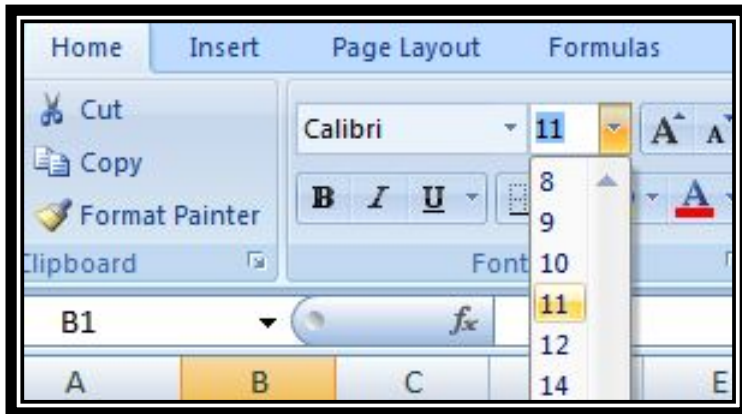


TO FORMAT TEXT IN BOLD,  
ITALICS OR UNDERLINE

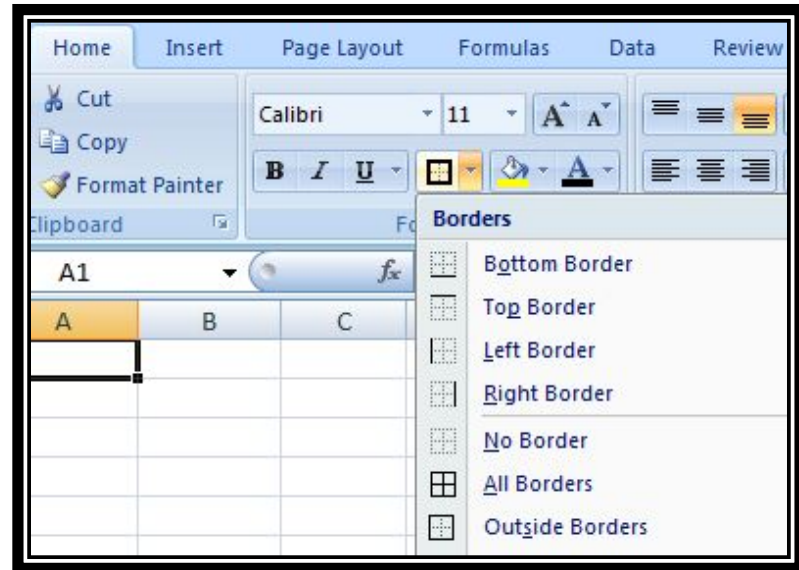


TO CHANGE THE FONT STYLE

# FORMATTING TEXT

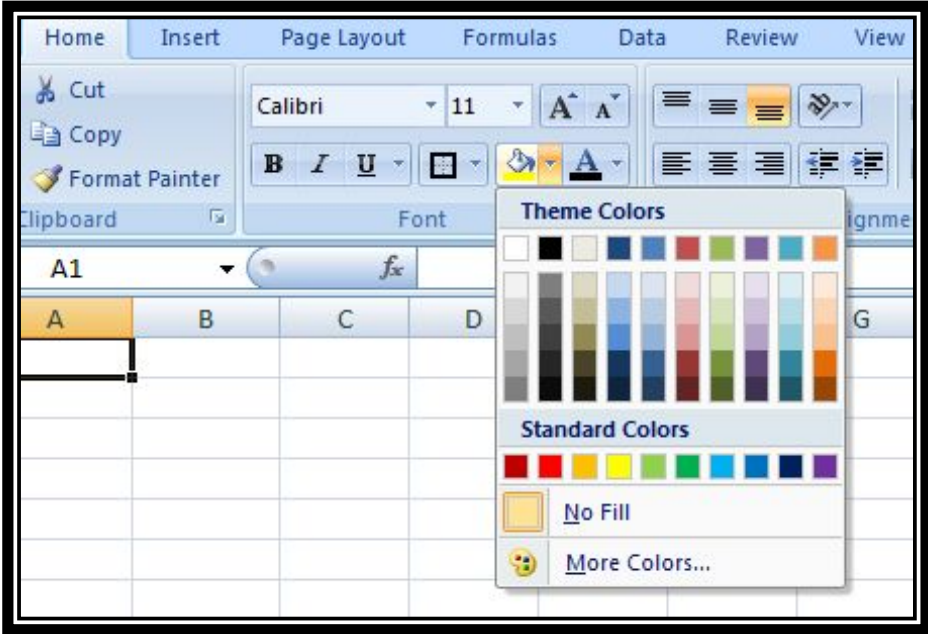


**TO CHANGE THE FONT SIZE**

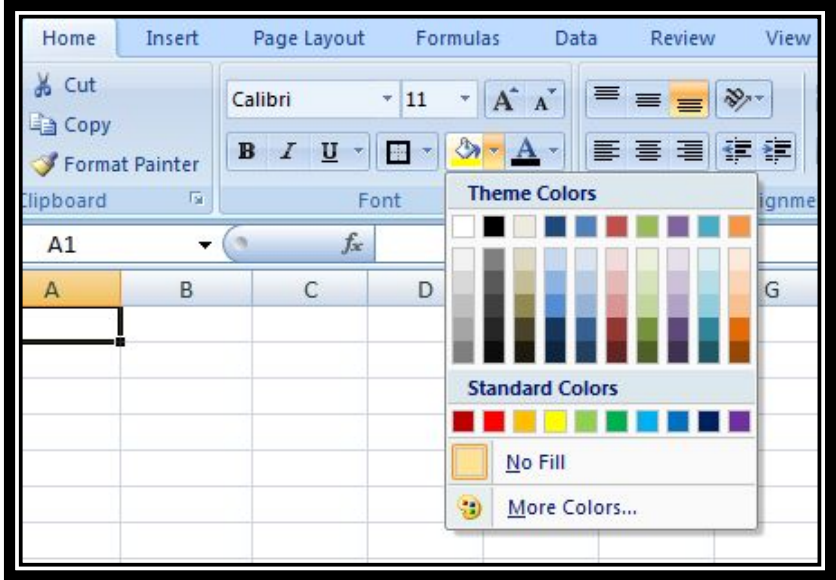


**TO ADD A BORDER**

# FORMATTING TEXT

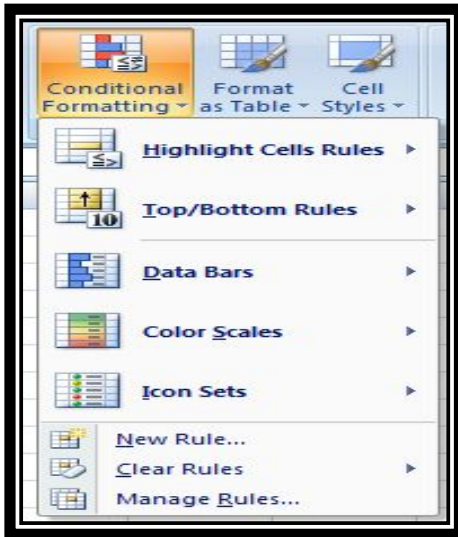


**TO CHANGE THE TEXT COLOUR**



**TO ADD A FILL COLOUR**

# CONDITIONAL FORMATTING



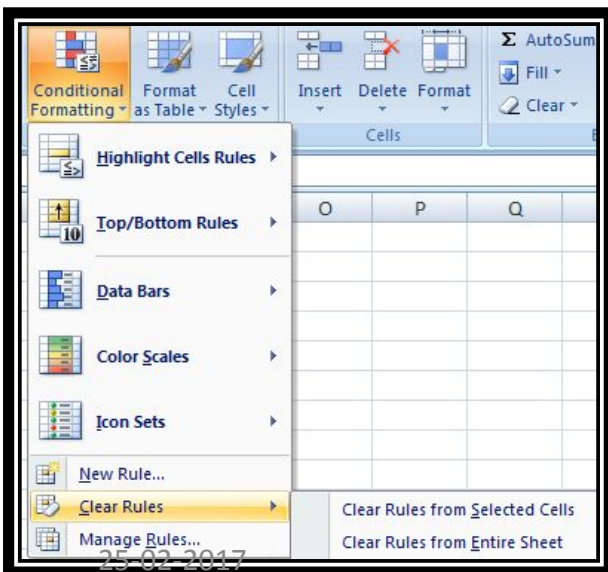
## TO APPLY CONDITIONAL FORMATTING:

Select the cells you would like to format.

Select the **Home** tab.

Locate the **Styles** group.

Click the **Conditional Formatting** command. A menu will appear with your formatting options.



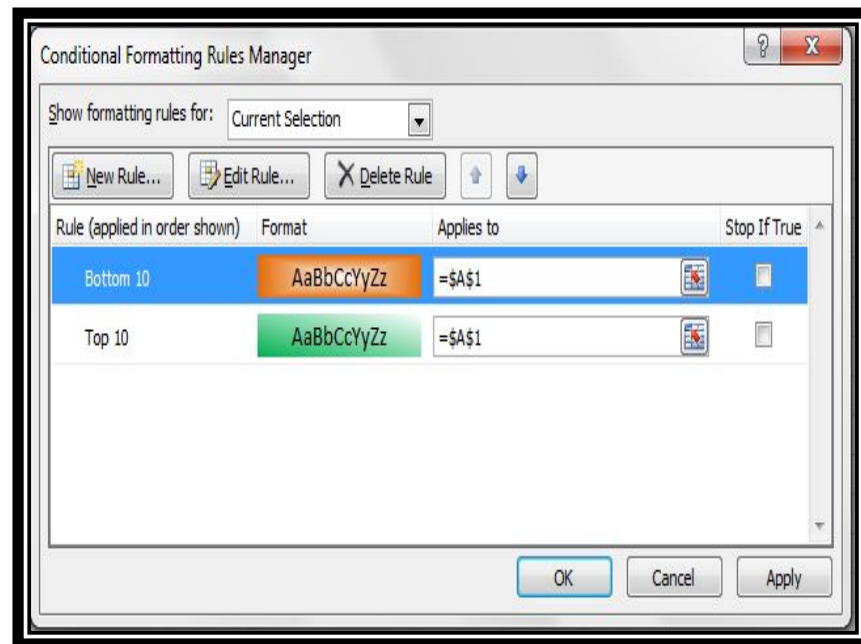
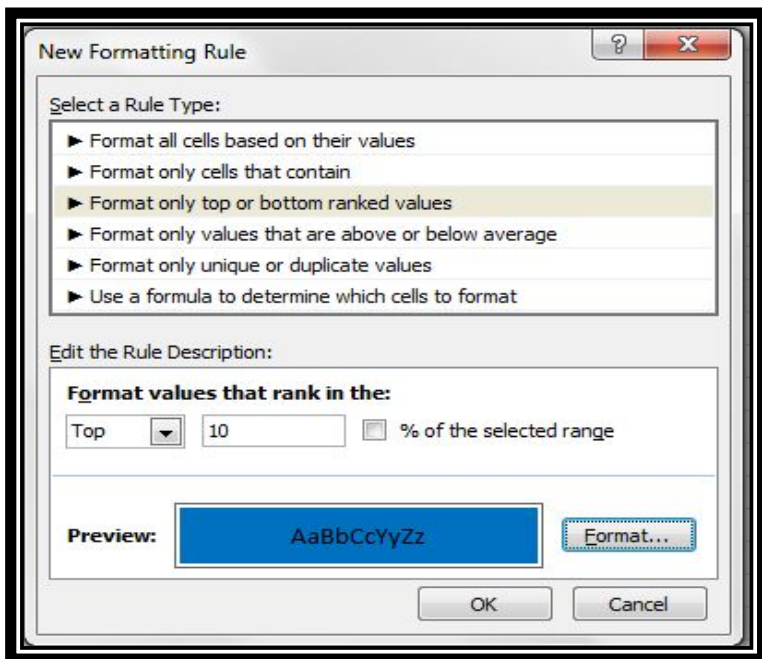
## TO REMOVE CONDITIONAL FORMATTING:

Click the **Conditional Formatting** command.

Select **Clear Rules**.

Choose to clear rules from the **entire worksheet** or the **selected cells**.

# CONDITIONAL FORMATTING



## TO APPLY NEW FORMATTING:

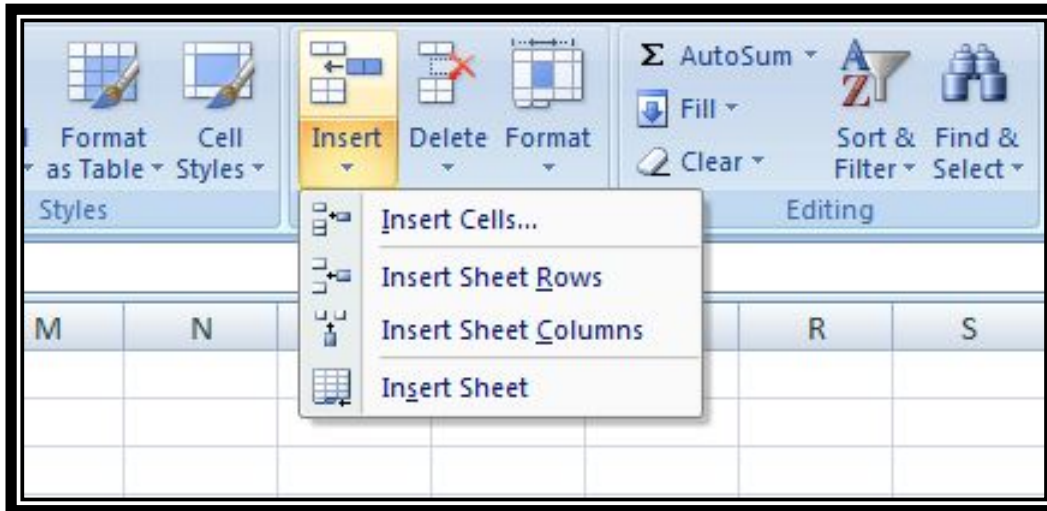
Click the **Conditional Formatting** command. Select **New Rules** from the menu. There are different rules, you can apply these rules to differentiate particular cell.

## TO MANAGE CONDITIONAL FORMATTING:

Click the **Conditional Formatting** command. Select **Manage Rules** from the menu. The Conditional Formatting Rules Manager dialog box will appear. From here you can edit a rule, delete a rule, or change the order of rules.



# TO INSERT ROWS & COLUMNS



## NOTE:

1. The new row always appears above the selected row.
2. The new column always appears to the left of the selected column.

## TO INSERT ROWS

## TO INSERT COLUMNS

# EXCEL AUTOFILL

The Excel Autofill feature can be used to populate a range of cells with either a repeat value, a series of values, or just a cell format.

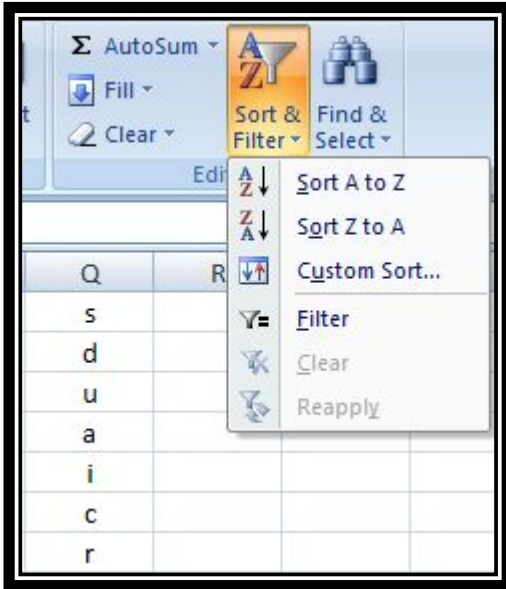
	A
1	5
2	5
3	5
4	5
5	5
6	5
7	5
8	
9	

	A
1	4
2	8
3	12
4	16
5	20
6	24
7	28
8	32
9	

## Autofill Dates & Times

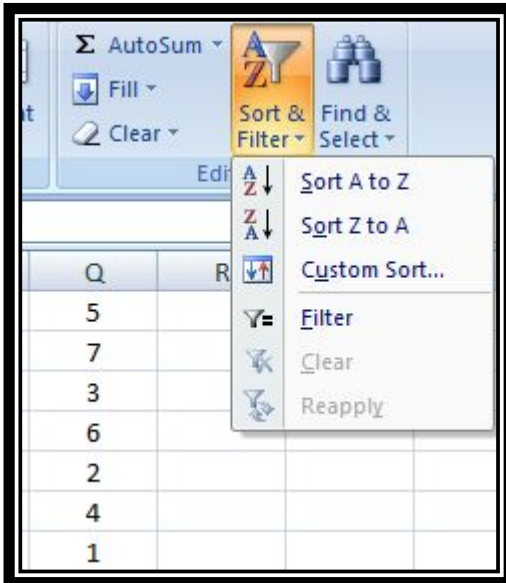
# SORTING

## TO SORT IN ALPHABETICAL ORDER



Q
a
c
d
i
r
s
u

## TO SORT FROM SMALLEST TO LARGEST



Q
1
2
3
4
5
6
7

# Cell References in Excel

	A	B	C
1	2	3	=A1+B1
2			
3			

	A	B	C
1	2	3	5
2			
3			

IN CELL (C1) SUM FUNCTION IS USED. THEN FUNCTION FROM CELL (C1) IS COPY TO CELL (D3). WHEN THE POSITION OF THE CELL IS CHANGED FROM (C1) TO (D3), THEN THE REFERENCE IS ALSO CHANGED FROM (A1,B1) TO (B3,C3).

	A	B	C	D
1	2	3	=A1+B1	
2				
3				=B3+C3
4				

	A	B	C	D
1	2	3	5	
2				
3	3	4		10
4				

**A RELATIVE CELL REFERENCE AS (A1) IS BASED ON THE RELATIVE POSITION OF THE CELL. IF THE POSITION OF THE CELL THAT CONTAINS THE REFERENCE CHANGES, THE REFERENCE ITSELF IS CHANGED.**

# Cell References in Excel

	A	B	C
1	2	3	=A\$1+B\$1
2			
3			

	A	B	C
1	2	3	5
2			
3			

IN CELL (C1) SUM FUNCTION IS USED.  
THEN FUNCTION FROM CELL (C1) IS COPY TO CELL (D3).  
WHEN THE POSITION OF THE CELL IS CHANGED FROM (C1)  
TO (D3), THEN THE ABSOLUTE REFERENCE REMAINS THE  
SAME(A1,B1).

	A	B	C	D
1	2	3	=A\$1+B\$1	
2				
3				
4				

	A	B	C	D
1	2	3	5	
2				
3				
4				

AN **ABSOLUTE CELL REFERENCE** AS (\$A\$1) ALWAYS REFERS TO A CELL IN A SPECIFIC LOCATION. IF THE POSITION OF THE CELL THAT CONTAINS THE FORMULA CHANGES, THE ABSOLUTE REFERENCE REMAINS THE SAME.

# Cell References in Excel

	A	B	C
1	2	3	=\$A1+\$B1
2			
3			

	A	B	C
1	2	3	5
2			
3			

IN CELL (C1) SUM FUNCTION IS USED. THEN FUNCTION FROM CELL (C1) IS COPY TO CELL (D3). WHEN THE POSITION OF THE CELL IS CHANGED FROM (C1) TO (D3), THEN ROW REFERENCE IS CHANGED (FROM 1 TO 3) BUT COLUMN REFERENCE REMAINS SAME (A, B).

	A	B	C	D
1	2	3	=\$A1+\$B1	
2				
3				
4				

	A	B	C	D
3	3	4	6	10
4				

**A MIXED CELL REFERENCE HAS EITHER AN ABSOLUTE COLUMN AND RELATIVE ROW OR ABSOLUTE ROW AND RELATIVE COLUMN. AN ABSOLUTE COLUMN REFERENCE TAKES THE FORM \$A1, \$B1. AN ABSOLUTE ROW REFERENCE TAKES THE FORM A\$1, B\$1.**



# Relative Cell References

CEILING.... : X ✓ *fx* =C2\*D2

	A	B	C	D	E
1	Date	Zone	Units	Rate/Unit	Gross
2	01/01/14	East	447	120.35	=C2*D2
3	01/10/14	Central	401	240.60	
4	01/19/14	West	167	158.59	
5	01/28/14	East	881	359.50	
6	02/06/14	Central	896	420.45	relative cell reference
7	02/15/14	West	910	250.60	
8	02/24/14	East	648	300.40	
9	03/05/14	Central	723	259.40	
10	03/14/14	West	900	350.41	
11					

An arrow points from the text "relative cell reference" in cell E6 to the formula "=C2\*D2" in cell E2, which is circled in red. The formula bar at the top shows "=C2\*D2".

# Relative Cell References

CEILING.... : X ✓ fx =C7\*D7

	A	B	C	D	E
1	<b>Date</b>	<b>Zone</b>	<b>Units</b>	<b>Rate/Unit</b>	<b>Gross</b>
2			447	120.35	53,796.45
3			401	240.60	96,480.60
4	01/19/14	West	167	158.59	26,472.53
5	01/28/14	East	881	359.50	316,720.50
6	02/06/14	Central	896	420.45	376,723.20
7	02/15/14	West	910	250.60	=C7*D7
8	02/24/14	East	648	300.40	194,659.20
9	03/05/14	Central	723	259.40	187,546.20
10	03/14/14	West	900	350.41	315,369.00
11					

cell references in row 7 are relative to row 7

C7 \* D7

# Absolute Cell Reference

relative cell reference      absolute cell reference



CEILING....				=E5*\$D\$1		
	A	B	C	D	E	F
1	<b>Rate of Commission :</b>			<b>5%</b>		
2						
3						
4	Date	Zone	Units	Rate/Unit	Gross	Commission
5	01/01/14	East	447	120.35	53,796.45	=E5*\$D\$1
6	01/10/14	Central	401	240.60	96,480.60	
7	01/19/14	West	167	158.59	26,484.53	
8	01/28/14	East	881	359.50	316,719.50	
9	02/06/14	Central	896	420.45	376,723.20	
10	02/15/14	West	910	250.60	228,046.00	
11	02/24/14	East	648	300.40	194,659.20	
12	03/05/14	Central	723	259.40	187,546.20	
13	03/14/14	West	900	350.41	315,369.00	
14						



# Absolute Cell Reference

The image shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	<b>Rate of Commission :</b>			5%		
2						
3						
4	<b>Date</b>	<b>Zone</b>	<b>Units</b>	<b>Rate/Unit</b>	<b>Gross</b>	<b>Commission</b>
5	01/01/14	East	447	120.35	53,796.45	2,689.82
6	01/10/14	Central	401	240.60	96,480.60	4,824.03
7	01/19/14	West	167	158.59	26,484.53	1,324.23
8	01/28/14	East	881	359.50	316,719.50	15,835.98
9	02/06/14	Central	896	420.45	376,723.20	=E9*\$D\$1
10	02/15/14	West	910	250.60	228,046.00	11,402.30
11	02/24/14	East	648	300.40	194,659.20	9,732.96
12	03/05/14	Central	723	259.40	187,546.20	9,377.31
13	03/14/14	West	899	350.41	315,369.00	15,768.45
14						

**Annotations:**

- The formula bar shows `=E9*$D$1`. The `$D$1` part is circled in red, indicating an absolute reference.
- An orange callout box points to the `$D$1` reference, stating: "absolute cell references column and row are fixed".
- Another orange callout box points to the `E9` reference in row 9, stating: "cell reference in row 9 are relative to row 9".

## How using cell references with multiple worksheets ?

Excel allows cell references not only within one sheet of a workbook but also can update many sheets at a time with the changes of value of one cell of a sheet.



# How using cell references with multiple worksheets ?

**master!\$B2\*master!B\$7-transaction!\$B2**

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1		Maximum						
	Product	Change	Jan.	Feb.	Mar.			
1		(Qty.)						
2	TV (LCD)	200	=master!\$B2*master!B\$7-transaction!\$B2					
3	TV (LED)	500	2500					
4								
5								
6								
7								
8								
9								
10								
11								

The formula bar shows: `=master!$B2*master!B$7-transaction!$B2`

The spreadsheet has two sheets: **master** (inactive) and **transaction** (active).

Arrows indicate the following references:

- `master!$B2` refers to cell B2 in the inactive **master** sheet.
- `master!B$7` refers to cell B7 in the inactive **master** sheet.
- `transaction!$B2` refers to cell B2 in the active **transaction** sheet.



# FUNCTIONS BASIC

A formula is an expression which calculates the value of one or more cell(s). Formulas always start with an equal sign (=), followed by constants that are numeric values and calculation operators such as plus (+), minus (-), asterisk(\*), or forward slash (/) signs.

	A	B	C	D	E
1		8	2		
2		5	3		
3		6	4		
4		88	14		
5					
6					
7					
8					
9					

The screenshot shows an Excel spreadsheet with the following data and formulas:

- Cell B1: 8
- Cell B2: 5
- Cell B3: 6
- Cell B4: 88
- Cell C1: 2
- Cell C2: 3
- Cell C3: 4
- Cell C4: 14

Formulas are shown in the formula bar and circled in red:

- Formula in B4:  $=B1*(B2+B3)$
- Formula in C4:  $=C1*(C2+C3)$

Red arrows indicate the relationship between the formulas and the cells they calculate. A blue box highlights the formula bar for cell C4, and a blue label "Formula in C4" points to the formula bar. A blue label "Formula in B4" points to the formula in cell B4.

# INSERT A FUNCTION

The image shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1		8		2		7	
2		5		3			
3		6					
4							
5		TOTAL :	=SUM(B1:B3,D1:D2,F1)				
6							
7					TOTAL :	31	

The formula bar at the top shows: `=SUM(B1:B3,D1:D2,F1)`

Arrows indicate the following ranges for the function arguments:

- `B1:B3` (values: 8, 5, 6)
- `D1:D2` (values: 2, 3)
- `F1` (value: 7)

Text label: "three arguments"

# INSERT A FUNCTION

	A	B	C	D
1	Name	Unit-1 (10)	Unit-2 (10)	Average
2	A. Das	8	2	
3	D.Negeo	5	3	
4	S.Ram	6	4	
5				
6				
7				
8				
9				

Insert Function

Search for a function:

Type a brief description of what you want to do and then click Go

Or select a category: Statistical

Select a function:

- AVEDEV
- AVERAGE**
- AVERAGEA
- AVERAGEIF
- AVERAGEIFS
- BETA.DIST
- BETA.INV

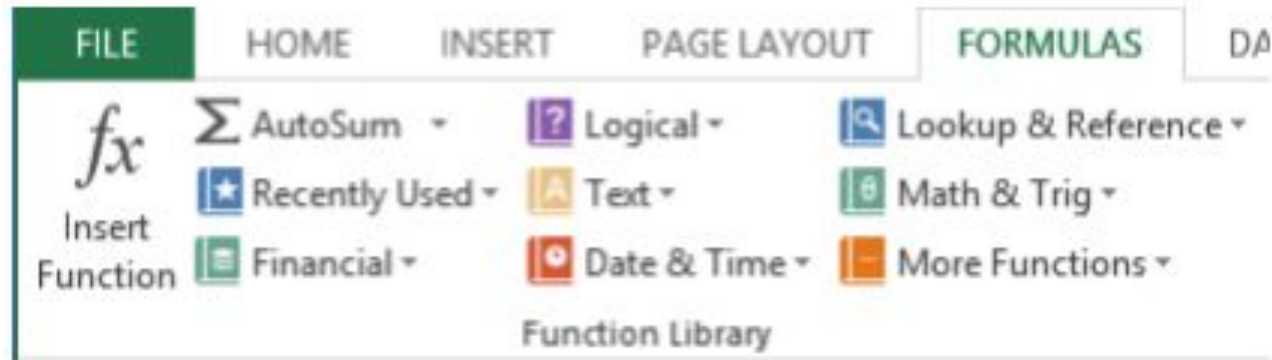
**AVERAGE(number1,number2,...)**  
Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.

[Help on this function](#)

OK Cancel

# FUNCTIONS

The FORMULAS tab includes a Function Library group. This group provides easy access to the functions that are available in Excel because it divides the functions into categories for ease of reference.



# FUNCTIONS

## IF FUNCTION

### SYNTAX OF IF

=IF(LOGICAL TEXT, VALUE IF TRUE, VALUE IF FALSE)

A	B	C
	<b>FUNCTION</b>	<b>RESULT</b>
5	IF(A2<5,"TRUE","FALSE")	FALSE
	IF(A2>5,"TRUE","FALSE")	FALSE
	IF(A2=5,"TRUE","FALSE")	TRUE
	IF(A2<5,20,10)	10
	IF(A2>=5,20,10)	20
	IF(A2<=5,"A","B")	A
	IF(A2>5,"A","B")	B

### LOGICAL TEXT-

Any value or expression that can be evaluated to TRUE or FALSE.

### VALUE IF TRUE-

Value that is returned if logical text is TRUE.

### VALUE IF FALSE-

Value that is returned if logical text is FALSE.



# FUNCTIONS

## SUMIF FUNCTION

A	B
5	3
1	7
7	4
3	1
9	8
4	6
2	2
FUNCTION	RESULT
SUMIF(A1:A7,"<5")	10
SUMIF(A1:A7,"<5",B1:B7)	16

WITHOUT  
SUM\_RANGE

WITH  
SUM\_RANGE

## **SYNTAX OF SUMIF**

=SUMIF(RANGE,CRITERIA, [SUM\_RANGE])

### **RANGE-**

Range of cells on which conditions are applied.

### **CRITERIA-**

Condition that defines which cell or cells will be added.

### **SUM RANGE-**

Actual cells to sum.

### **NOTE:-**

If sum range is not used then range is used for sum.

# FUNCTIONS

## SUMIFS FUNCTION

### SYNTAX OF SUMIFS

=SUMIFS(sum\_range, criteria\_range1, criteria1, [criteria\_range2, criteria2], ...)

	A	B	C	D	E	F
1	Product	Sales	Salesman	Apples sales	\$100	=SUMIF(A2:A6, "apples", B2:B6)
2	Apples	\$30	Seller 1			
3	Oranges	\$50	Seller 2	Apples, Seller 1 sales	\$60	=SUMIFS(B2:B6, A2:A6, "apples", C2:C6, "seller 1")
4	Apples	\$30	Seller 1			
5	Oranges	\$20	Seller 1			
6	Apples	\$40	Seller 2			

# COUNT FUNCTIONS

## SYNTAX OF FUNCTIONS

1. COUNT(value1, [value2], ...)
2. COUNTA(value1, [value2], ...)
3. COUNTBLANK(range)
4. COUNTIF(range, criteria)
5. COUNTIFS(criteria\_range1, criteria1, [criteria\_range2, criteria2]...)

	A	B	C	D	E
1	Data		Numerical values:	5	=COUNT(A2:A9)
2	1				
3	10		Non-empty cells:	6	=COUNTA(A2:A9)
4					
5	5		Empty cells:	2	=COUNTBLANK(A2:A9)
6	text				
7			>5	3	=COUNTIF(A2:A9, ">5")
8	01/01/2015				
9	8		>5 and <10	1	=COUNTIFS(A2:A9, ">5", A2:A9, "<10")

# Excel Math and Trig Functions

**ABS** Returns the absolute value (i.e. the modulus) of a supplied number.

**ROUND** Rounds a number to a specified number of digits.

So if you have 4.126 in cell A1 and use the formula **=ROUND(A1,2)** the result will be 4.13 if the value in A1 is 4.123 the result will be 4.12.

**MOD** Returns the remainder from division.

**=MOD(20,6)** is 2 because you have 3 times 6 in 20 and the rest is 2.

**POWER** Returns the result of a number raised to a power.

**=POWER(A1,2)** will also result in 16 if the value in cell A1 is 4.

**SQRT** Returns a positive square root.

**=SQRT(16)** that will result in 4 because 4 multiplied by 4 is 16 or

**=SQRT(A1)** that will also result in 4 if the value in cell A1 is 16.

# Excel Math and Trig Functions

## Trigonometry Functions

- PI Returns the constant value of pi
- COS Returns the Cosine of a given angle
- ACOS Returns the Arccosine of a number
- SIN Returns the Sine of a given angle
- ASIN Returns the Arcsine of a number
- TAN Returns the Tangent of a given angle
- ATAN Returns the Arctangent of a given number
- COT Returns the cotangent of an angle (New in Excel 2013)
- ACOT Returns the arccotangent of a number (New in Excel 2013)

## Exponents & Logarithms

- EXP Returns  $e$  raised to a given power
- LN Returns the natural logarithm of a given number
- LOG Returns the logarithm of a given number, to a specified base
- LOG10 Returns the base 10 logarithm of a given number



# Types of Excel Formula Error

- #NULL! - Arises when you refer to an intersection of two ranges that do not intersect.
- #DIV/0! - Occurs when a formula attempts to divide by zero.
- #VALUE! - Occurs if one of the variables in your formula is of the wrong type (e.g. text value when a numeric value is expected).
- #REF! - Arises when a formula contains an invalid cell reference.
- #NAME? - Occurs if Excel does not recognise a formula name or does not recognise text within a formula.
- #NUM! - Occurs when Excel encounters an invalid number.
- #N/A - Indicates that a value is not available to a formula.

# Types of Excel Formula Error

A1  $f_x$  =SUM( B1:B10 C5:D7 )

	A	B	C	D	E
1	#NULL!				
2					
3					

A1  $f_x$  =B1 + C1

	A	B	C	D	E
1	#VALUE!	1	N/A		
2					
3					

A1  $f_x$  =SM( B1:C2 )

	A	B	C	D	E
1	#NAME?				
2					
3					

A1  $f_x$  =SQRT( -2 )

	A	B	C	D	E
1	#NUM!				
2					
3					

A1  $f_x$  =VLOOKUP( "Cabbage",C:D, 2, 0 )

	A	B	C	D	E
1	#N/A		Potatoes	\$1.95	
2			Peas	\$0.75	
3			Carrots	\$0.99	