

**INT217**

## **Introduction to Data Management**



# Course Details

## ► References:

1. MICROSOFT EXCEL 2016 BIBLE: THE COMPREHENSIVE TUTORIAL RESOURCE by JOHN WALKENBACH, WILEY
2. PROFESSIONAL MICROSOFT SQL SERVER 2014 INTEGRATION SERVICES by BRIAN KNIGHT, DEVIN KNIGHT, JESSICA M. MOSS, MIKE DAVIS, CHRIS ROCK, WILEY
3. FUNDAMENTALS OF BUSINESS ANALYTICS by R.N. PRASAD, SEEMA ACHARYA, WILEY

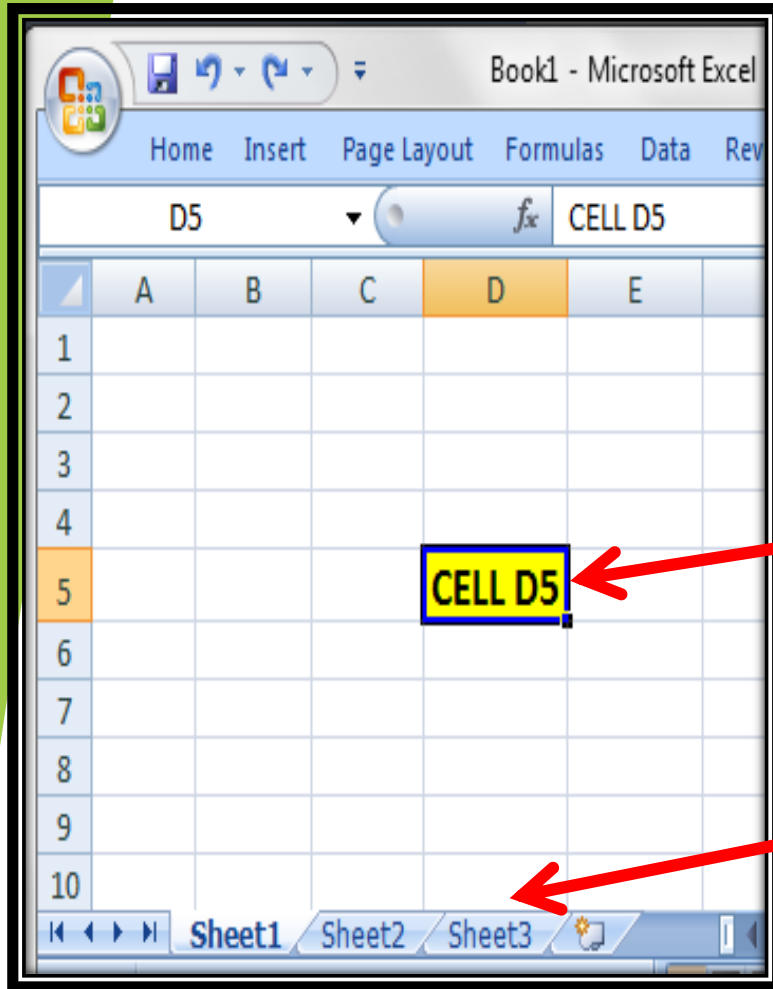
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# INTRODUCTION TO MS-EXCEL

- ❑ 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.
- ❑ Excels operates like other Microsoft(MS) office programs and has many of the same functions and shortcuts of other MS programs.

# OVERVIEW OF EXCEL

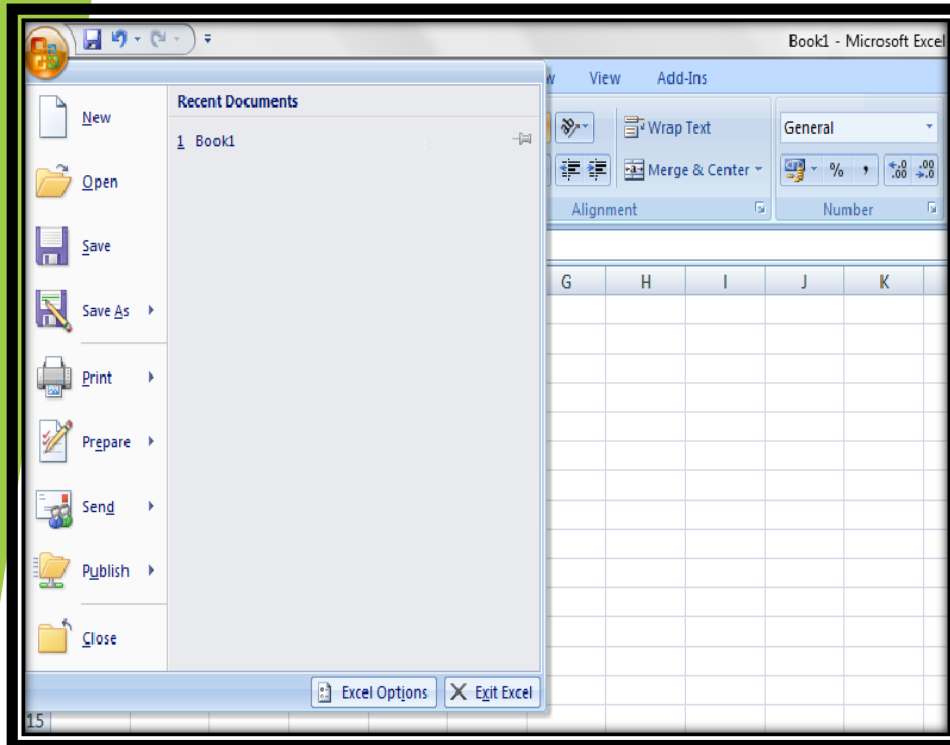


- ❑ Microsoft excel consists of workbooks. Within each workbook, there is an infinite number of worksheets.
- ❑ Each worksheet contains **Columns and Rows**.
- ❑ Where a column and a row intersect is called a **cell**. For e.g. cell **D5** is located where column **D** and row **5** meet.
- ❑ The tabs at the bottom of the screen represent different worksheets within a workbook. You can use the scrolling buttons on the left to bring other worksheets into view.



## 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.

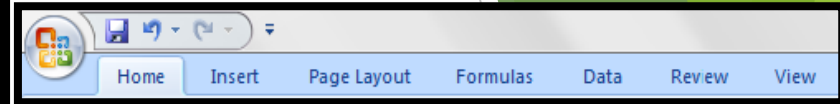


CLOSE-TO CLOSE A DOCUMENT (CTRL+W).

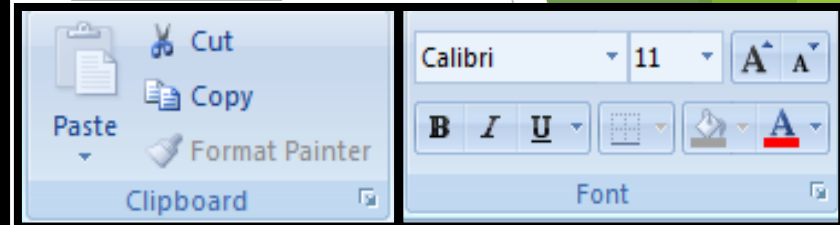
# RIBBONS

## THE THREE PARTS OF THE RIBBON ARE

### TABS



### GROUPS

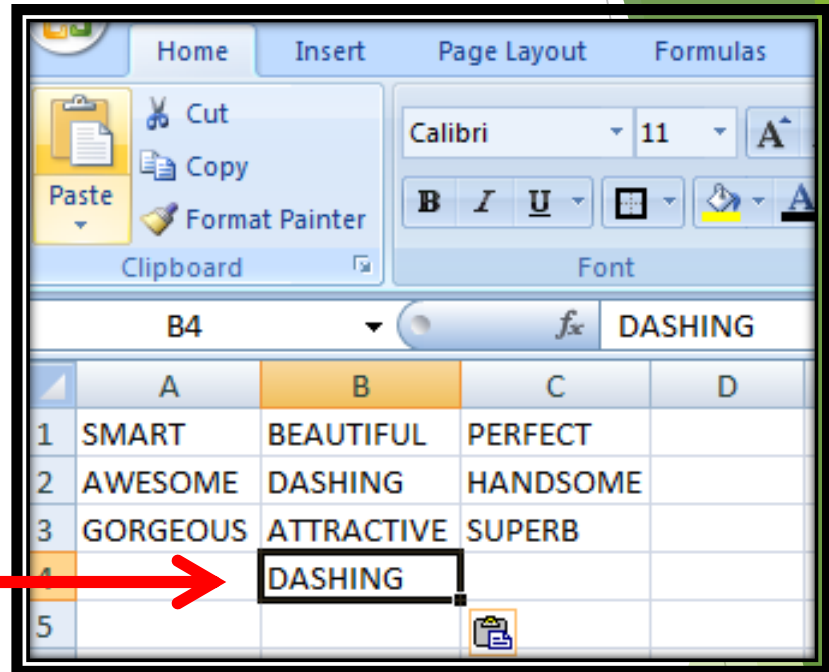
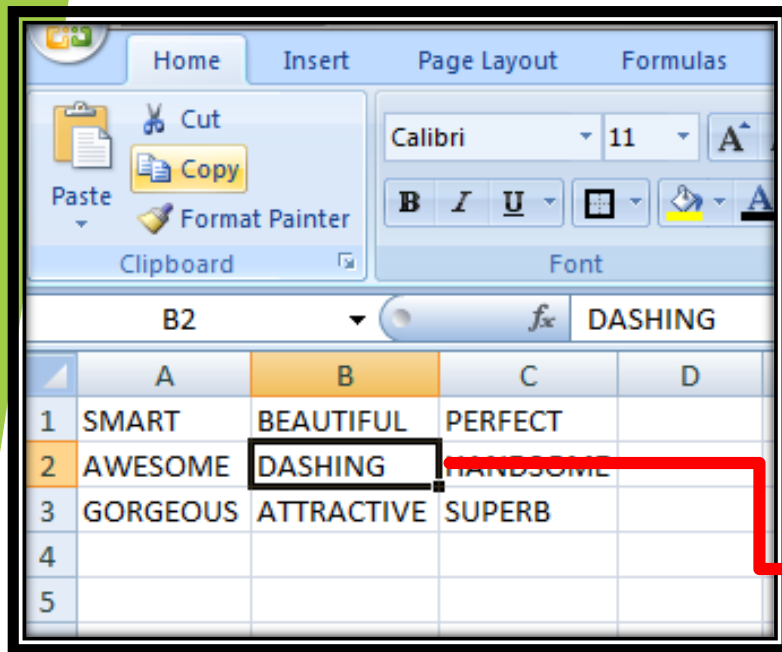


### COMMANDS



- ① **TABS**: THERE ARE SEVEN TABS ACROSS THE TOP OF THE EXCEL WINDOW.
- ② **GROUPS**: GROUPS ARE SETS OF RELATED COMMANDS, DISPLAYED ON TABS.
- ③ **COMMANDS**: A COMMAND IS A BUTTON, A MENU OR A BOX WHERE YOU ENTER INFORMATION.

# WORKING WITH CELLS



## TO COPY AND PASTE CONTENTS:

Select the cell or cells you wish to copy.

Click the **Copy** command in the Clipboard group on the Home tab.

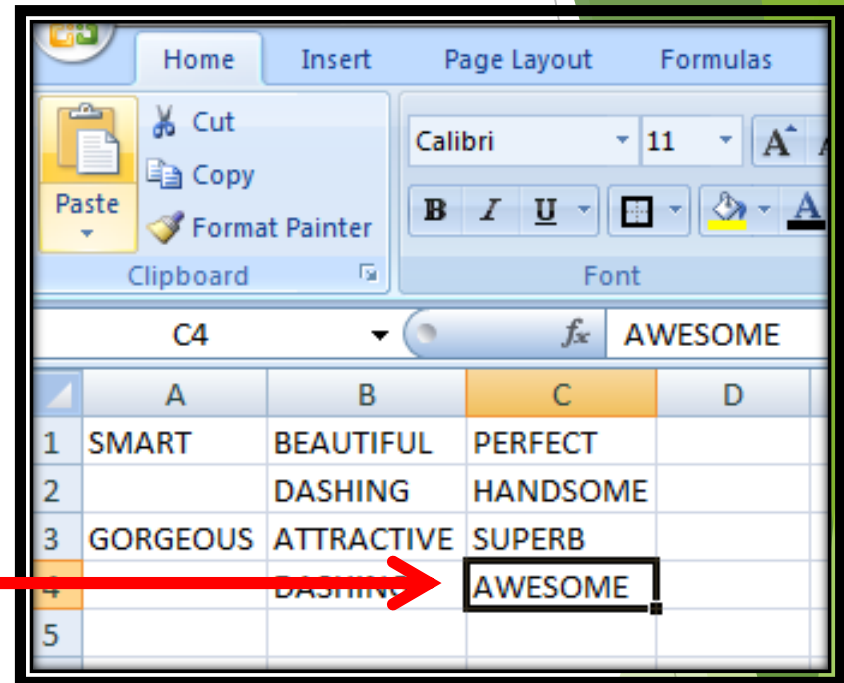
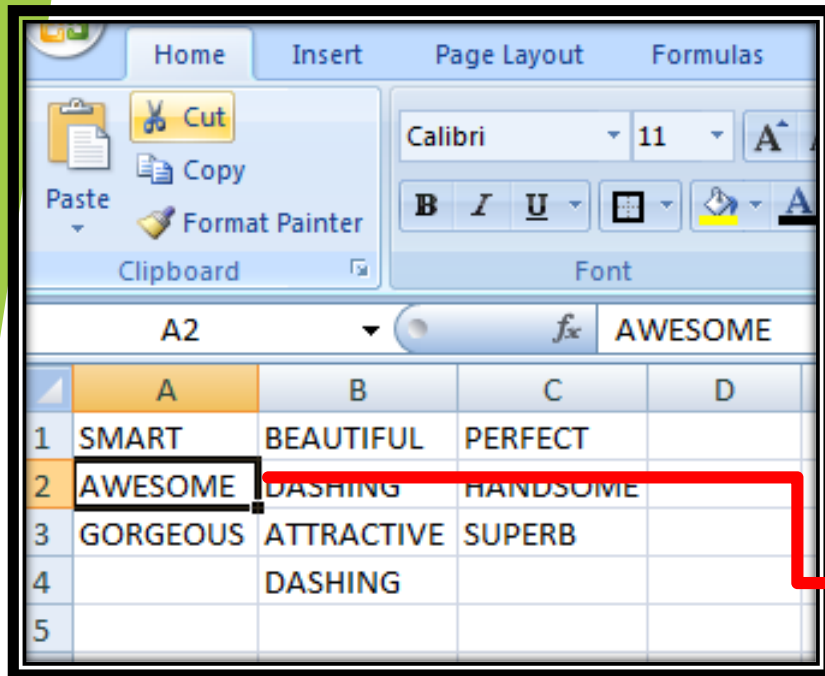
Select the cell or cells where you want to paste the information.

Click the **Paste** command.

The copied information will now appear in the new cells.



# WORKING WITH CELLS



## To Cut and Paste Cell Contents:

Select the **cell or cells** you wish to cut.

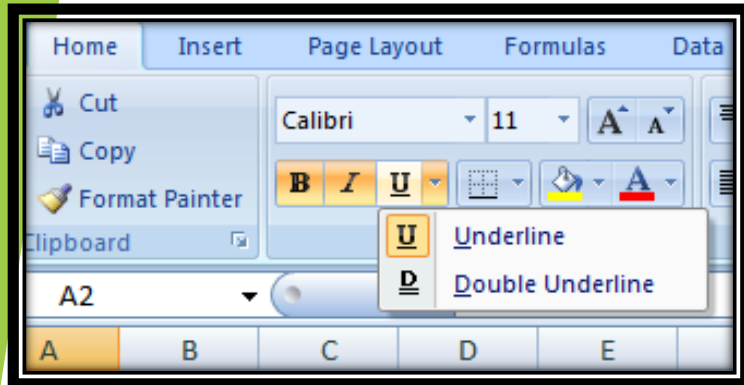
Click the **Cut** command in the Clipboard group on the Home tab.

Select the **cell or cells** where you want to **paste** the information.

Click the **Paste** command.

The cut information will be removed and **now appear** in the new **cells**.

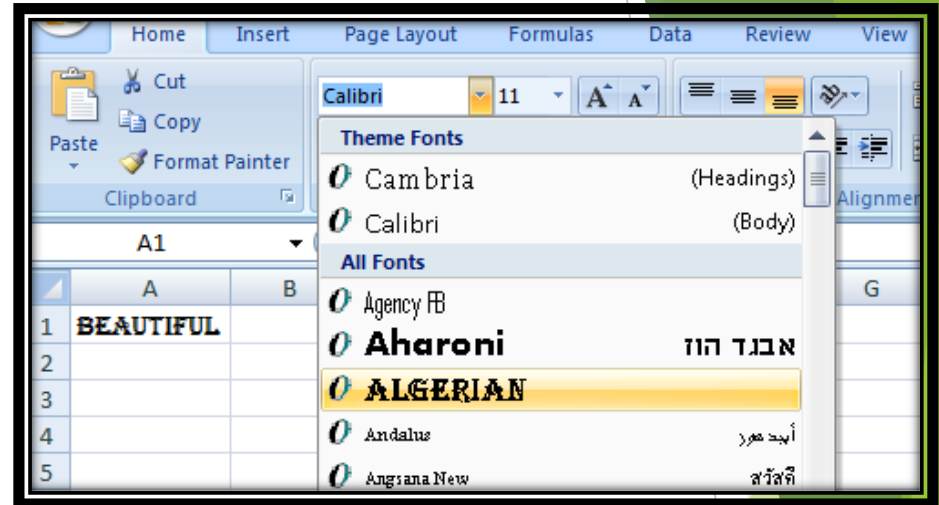
# FORMATTING TEXT



## TO FORMAT TEXT IN BOLD, ITALICS OR UNDERLINE:

Left-click a cell to select it or drag your cursor over the text in the formula bar to select it.

Click the **Bold**, **Italics** or **underline** command.

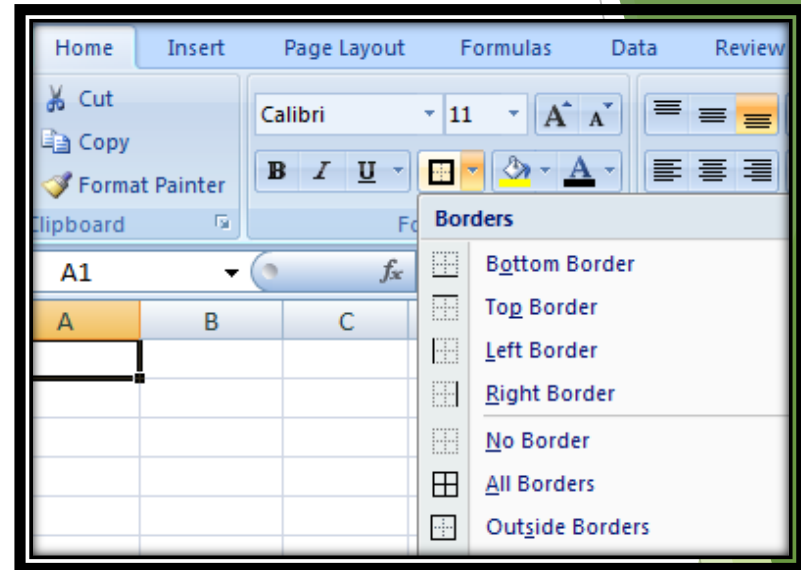
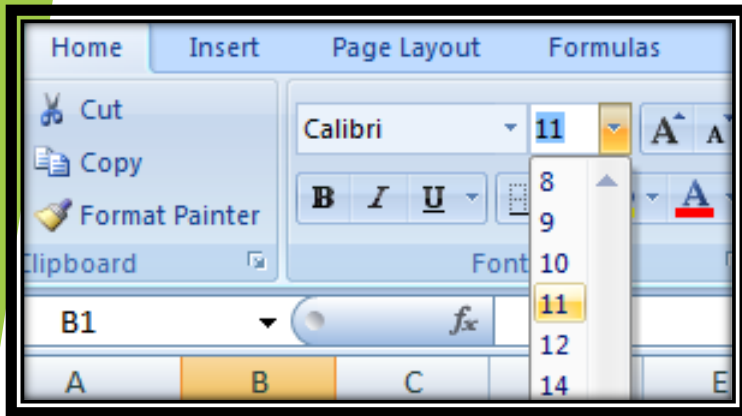


## TO CHANGE THE FONT STYLE:

Select the cell or cells you want to format.

Left-click the **drop-down arrow** next to the **Font Style** box on the Home tab. Select a **font style** from the list.

# FORMATTING TEXT



## TO CHANGE THE FONT SIZE:

Select the cell or cells you want to format.

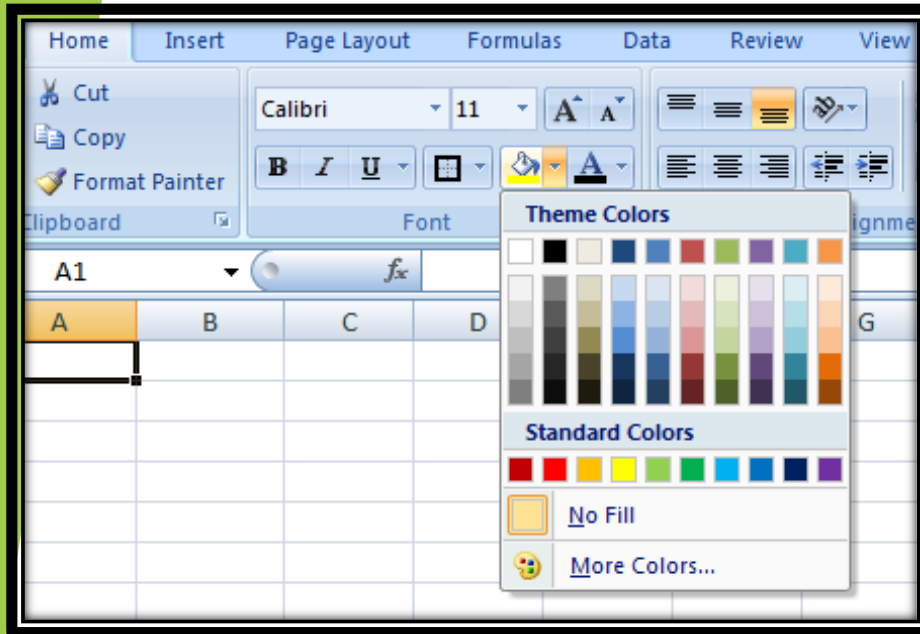
Left-click the **drop-down arrow** next to the **Font Size** box on the Home tab. Select a **font size** from the list.

## TO ADD A BORDER:

Select the cell or cells you want to format.

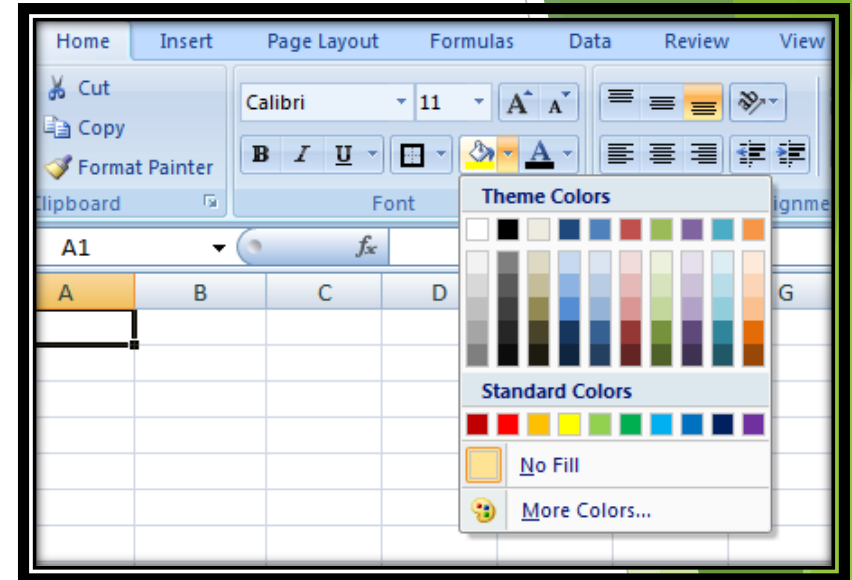
Click the **drop-down arrow** next to the **Borders** command on the Home tab. A menu will appear with border options.

# FORMATTING TEXT



## TO CHANGE THE TEXT COLOUR:

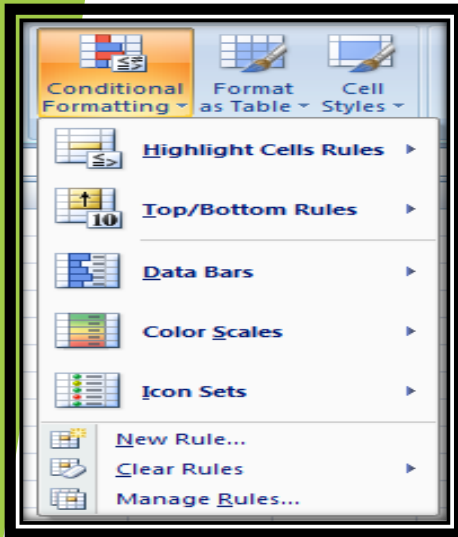
Select the cell or cells you want to format.  
Left-click the **drop-down arrow** next to the **Text Color** command. A color palette will appear.  
Select a color from the palette.



## TO ADD A FILL COLOUR:

Select the cell or cells you want to format.  
Click the **Fill command**. A color palette will appear.  
Select a color from the palette.

# CONDITIONAL FORMATTING



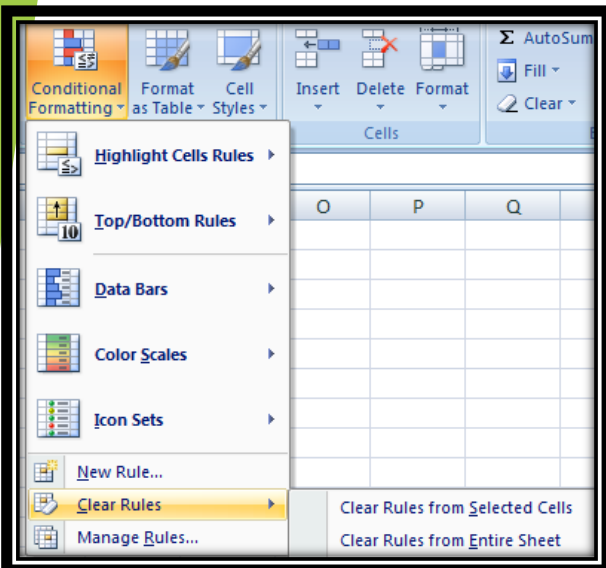
## TO APPLY CONDITIONAL FORMATTING:

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.



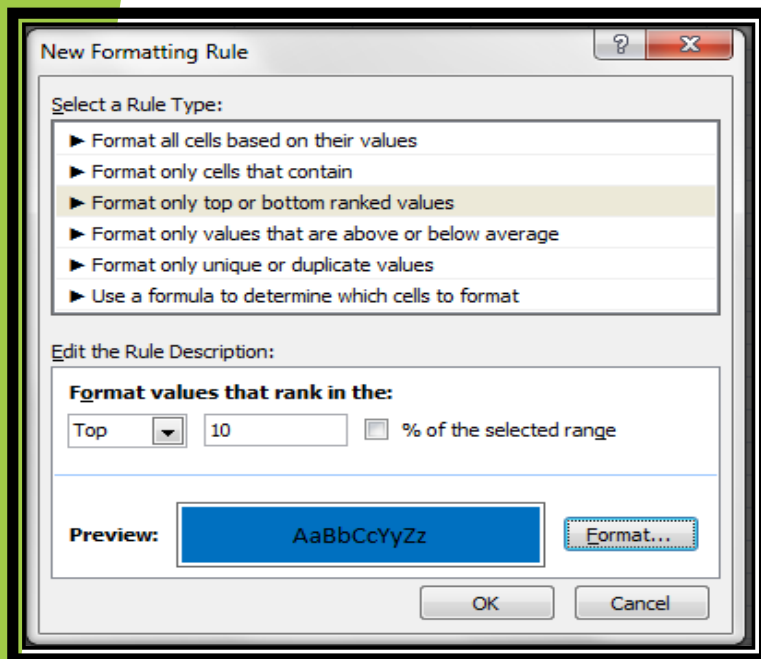
## TO REMOVE CONDITIONAL FORMATTING:

Click the **Conditional Formatting** command.

Select **Clear Rules**.

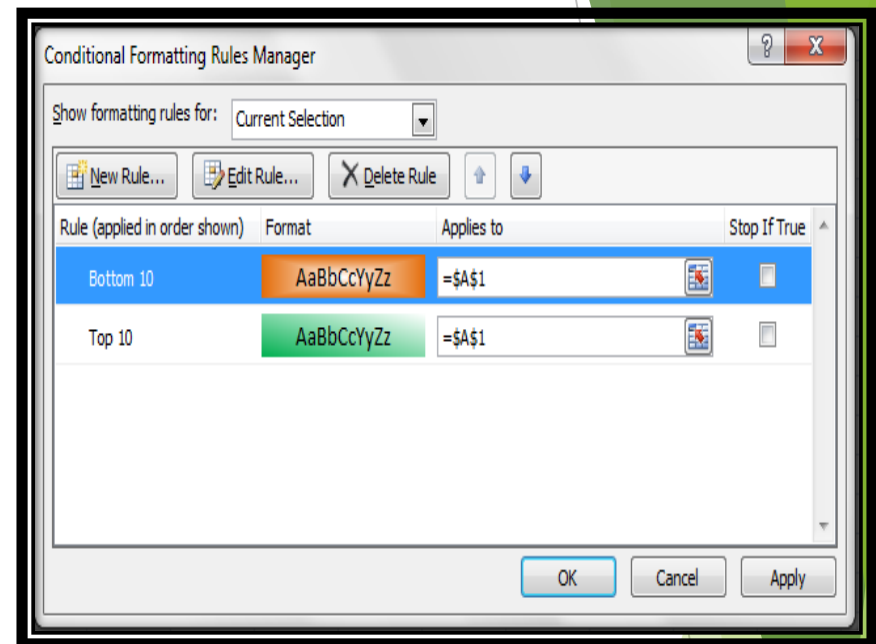
Choose to clear rules from the **entire worksheet** or the **selected cells**.

# CONDITIONAL FORMATTING



## TO APPLY NEW FORMATTING:

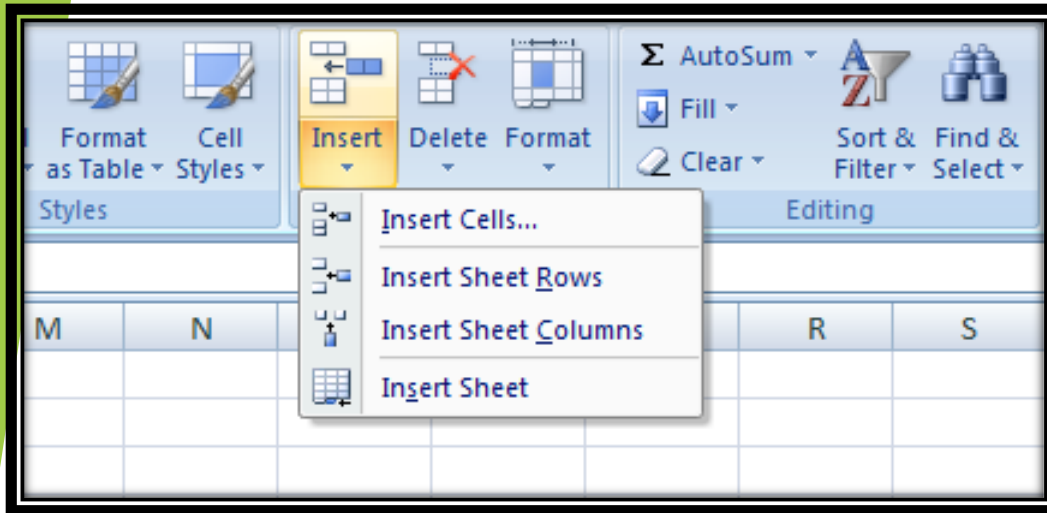
Click the **Conditional Formatting** command. Select **New Rules** from the menu. There are different rules, you can apply these rules to differentiate particular cell.



## 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 & COLOUMS



## 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:

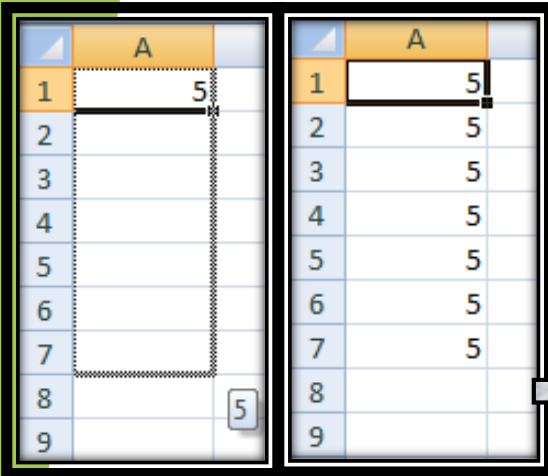
Select the row **below** where you want the new row to appear. Click the **Insert** command in the Cells group on the Home tab. The row will appear.

## To Insert Columns:

Select the column to the right of where you want the column to appear. Click the **Insert** command in the Cells group on the Home tab. The column will appear.

# EDITING- FILL

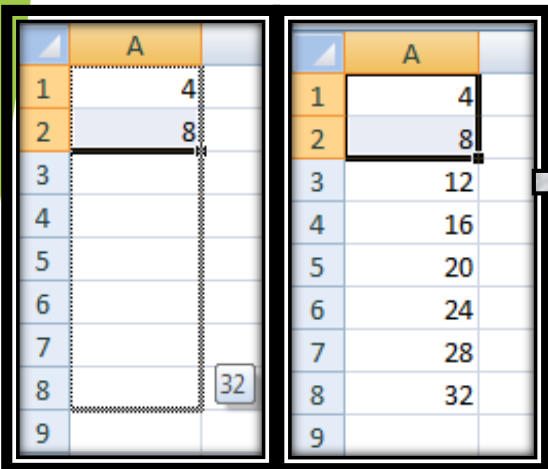
- ❑ IN THE LOWER RIGHT HAND CORNER OF THE ACTIVE CELL IS EXCEL'S "FILL HANDLE". WHEN YOU HOLD YOUR MOUSE OVER THE TOP OF IT, YOUR CURSOR WILL TURN TO A CROSSHAIR.



	A
1	5
2	
3	
4	
5	
6	
7	
8	
9	

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

- ❑ IF YOU HAVE JUST ONE CELL SELECTED, IF YOU CLICK AND DRAG TO FILL DOWN A COLUMN OR ACROSS A ROW, IT WILL COPY THAT NUMBER OR TEXT TO EACH OF THE OTHER CELLS.



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

	A
1	4
2	8
3	12
4	16
5	20
6	24
7	28
8	32
9	36

- ❑ IF YOU HAVE TWO CELLS SELECTED, EXCEL WILL FILL IN A SERIES. IT WILL COMPLETE THE PATTERN. FOR EXAMPLE, IF YOU PUT 4 AND 8 IN TWO CELLS SELECT THEM, CLICK AND DRAG THE FILL HANDLE, EXCEL WILL CONTINUE THE PATTERN WITH 12, 16, 20, ETC.
- ❑ EXCEL CAN ALSO AUTO- FILL SERIES OF DATES, TIMES, DAYS OF THE WEEK, MONTHS.



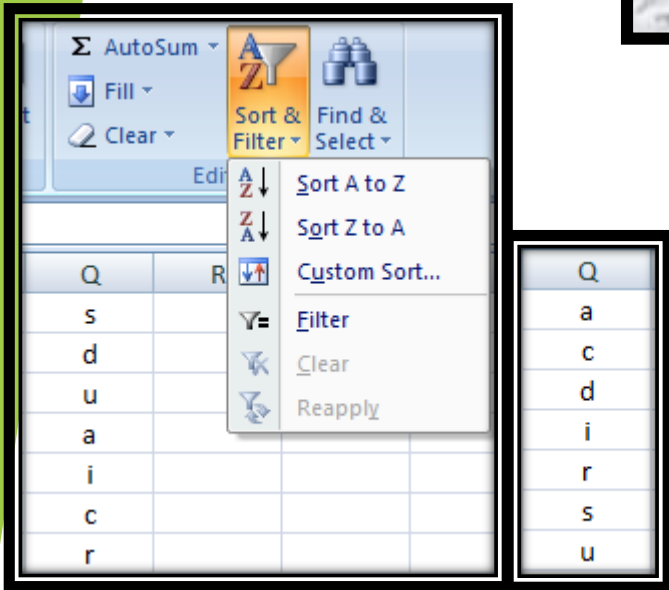
# SORTING

## TO SORT IN ALPHABETICAL ORDER:

Select a cell in the column you want to sort (In this example, we choose a cell in column Q).

Click the **Sort & Filter** command in the **Editing** group on the Home tab.

Select **Sort A to Z**. Now the information in the Category column is organized in alphabetical order.

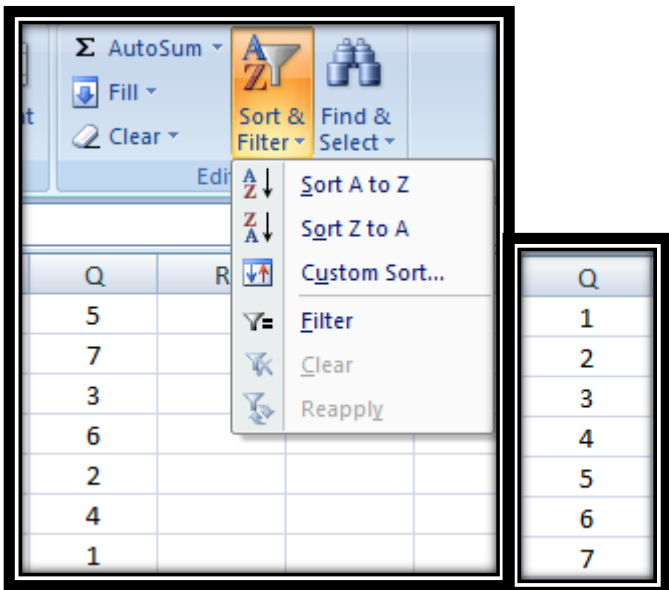


## TO SORT FROM SMALLEST TO LARGEST:

Select a cell in the column you want to sort (In this example, we choose a cell in column Q).

Click the **Sort & Filter** command in the **Editing** group on the Home tab.

Select **From Smallest to Largest**. Now the information is organized from the smallest to largest amount.



# CELL REFERENCING

## RELATIVE REFERENCE

	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		4	6	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 REFERENCING

## ABSOLUTE REFERENCE

	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).  $\$$  IS USED FOR CONSTANT ROW OR COLUMN.

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

	A	B	C	D
1	2	3	5	
2				
3		4	6	5
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 REFERENCING

## MIXED REFERENCE

	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				=A3+B3
4				

	A	B	C	D
1	2	3	5	
2				
3	4	6		10
4				

A MIXED 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.

# FUNCTIONS

## DATEDIF FUNCTION

### SYNTAX OF DATEDIF

=DATEDIF(START\_DATE,END\_DATE,"INTERVAL")

A	B	C
MY DATE OF BIRTH	23/06/1993	
TODAY'S DATE	10/01/2013	
	<b>FUNCTIONS</b>	<b>RESULTS</b>
NO. OF DAYS	= DATEDIF(B1,B2,"D")	7141
NO. OF MONTHS	= DATEDIF(B1,B2,"M")	234
NO. OF YEARS	= DATEDIF(B1,B2,"Y")	19
NO. OF YEARS	= DATEDIF(B1,B2,"Y")	19
MONTHS OF YEAR	=DATEDIF(B1,B2,"YM")	6
DAYS OVER MONTH	=DATEDIF(B1,B2,"MD")	18

### START DATE-

Date from which u want to calculate difference.

### END DATE-

Date up to which u want to calculate difference.

### INTERVAL-

Form in which u want to calculate difference.

“D” - DAYS

“M” - MONTHS

“Y” - YEARS

“YM” - MONTHS OVER YEAR

“MD” - DAYS OVER MONTH

This says that I  
am 19 years 6  
months & 18  
days old

# 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

## IF FUNCTION

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

## SYNTAX OF IF

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

### 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.

IN COLUMN B DIFFERENT CONDITIONS ARE USED  
AND BASED ON THIS, IN COLUMN C DIFFERENT  
RESULTS ARE SHOWN.



# COUNT FUNCTIONS

## SYNTAX OF FUNCTIONS

1. **COUNT**  
=COUNT(VALUE1,VALUE2,...)
2. **COUNTA**  
=COUNTA(VALUE1,VALUE2,...)
3. **COUNTBLANK**  
=COUNTBLANK(RANGE)
4. **COUNTIF**  
=COUNTIF(RANGE,CRITERIA)

	A	B	C
1	3	<b>FUNCTIONS</b>	<b>RESULT</b>
2	5	= COUNT(A1:A10)	4
3		=COUNTA(A1:A10)	8
4	-	= COUNTBLANK(A1:A10)	2
5	=	=COUNTIF(A1:A10,"<=5")	3
6	.		
7	,		
8			
9	8		
10	0		

1.

COUNT ONLY  
CELLS THAT  
CONTAINS  
NUMBER.

2.

COUNT CELLS  
THAT ARE NOT  
EMPTY.

3.

COUNT CELLS  
THAT ARE  
BLANK.

4.

COUNT NO. OF  
CELLS THAT  
MEET GIVEN  
CONDITION.



# TEXT FUNCTIONS

	A	B	C	D
1		<b>LOWER FUNCTION</b>	<b>UPPER FUNCTION</b>	<b>PROPER FUNCTION</b>
2	SmaRt	smart	SMART	Smart
3	BeautiFul	beautiful	BEAUTIFUL	Beautiful
4	DashIng	dashing	DASHING	Dashing
5	GorgeOus	gorgeous	GORGEIOUS	Gorgeous
6	PerfEct	perfect	PERFECT	Perfect
7	ExcellEnt	excellent	EXCELLENT	Excellent
8	AwesOme	awesome	AWESOME	Awesome

## SYNTAX OF FUNCTIONS

1. **LOWER FUNCTION**  
=LOWER(TEXT)
2. **UPPER FUNCTION**  
=UPPER(TEXT)
3. **PROPER FUNCTION**  
=PROPER(TEXT)

1.

TO CONVERT TEXT  
FROM CAPITAL TO  
SMALL.

2.

TO CONVERT TEXT  
FROM SMALL TO  
CAPITAL.

3.

TO CAPITALISED  
EACH WORD OF  
TEXT.

# TEXT FUNCTIONS

	A	B	C	D
		LEFT FUNCTION	RIGHT FUNCTION	MID FUNCTION
1				
2		=LEFT(A <sub>n</sub> ,3)	=RIGHT(A <sub>n</sub> ,3)	=MID(A <sub>n</sub> ,2,3)
3	smart	sma	art	mar
4	beautiful	bea	ful	eau
5	dashing	das	ing	ash
6	gorgeous	gor	ous	org
7	perfect	per	ect	erf
8	excellent	exc	ent	xce
9	awesome	awe	ome	wes

## SYNTAX OF FUNCTIONS

1. **LEFT FUNCTION**  
=LEFT(TEXT,NUM\_CHARS)
2. **RIGHT FUNCTION**  
=RIGHT(TEXT,NUM\_CHARS)
3. **MID FUNCTION**  
=MID(TEXT,STARTNUM,NUM\_CHAR)

1.

RETURN SPECIFIED  
NO. OF CHARACTER  
FROM START OF  
TEXT.

2.

RETURN SPECIFIED  
NO. OF CHARACTER  
FROM END OF TEXT.

3.

RETURN CHARACTER  
FROM MIDDLE OF  
TEXT, GIVEN A  
STARTING POSITION.

# OTHER FUNCTIONS

## USES OF FUNCTIONS

	A	B
1	FUNCTIONS	RESULTS
2		
3	=NOW()	14/01/2013 01:55
4		
5		
6	=TODAY()	14/01/2013
7		
8		
9	=MOD(7,3)	1
10		
11		
12	=LEN(A1)	9
13		
14		
15	=SUM(2,3)	5
16		

⇒ **NOW** RETURNS CURRENT DATE AND TIME.

⇒ **TODAY** RETURNS CURRENT DATE ONLY.

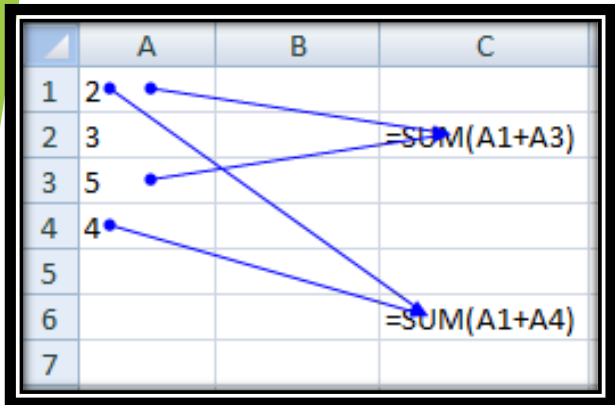
⇒ **MOD** RETURNS THE REMAINDER AFTER A NO. IS DIVIDED BY A DIVISOR.

⇒ **LEN** RETURNS THE NO. OF CHARACTERS IN A TEXT STRING.

⇒ **SUM** ADD ALL THE NUMBERS.

# FUNCTION AUDITING

## TRACE PRECEDENTS



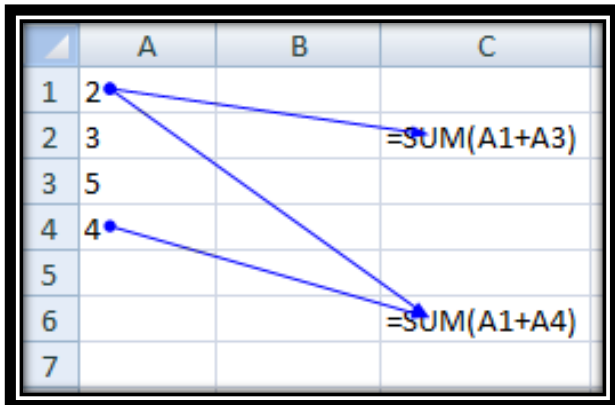
An Excel spreadsheet with columns A, B, and C, and rows 1 through 7. Cell A1 contains the value 2, A2 contains 3, A3 contains 5, and A4 contains 4. Cell C2 contains the formula =SUM(A1+A3) and cell C6 contains the formula =SUM(A1+A4). Blue arrows point from cell A1 to both C2 and C6. Another blue arrow points from cell A3 to C2. A third blue arrow points from cell A4 to C6. A large grey arrow points from this table towards the text on the right.

	A	B	C
1	2		
2	3		=SUM(A1+A3)
3	5		
4	4		
5			
6			=SUM(A1+A4)
7			

SHOW ARROW THAT INDICATE WHAT CELLS AFFECT THE VALUE OF THE CURRENTLY SELECTED CELL.

IN THIS EXAMPLE CELLS A1 & A3 AFFECT THE VALUE OF CELL C2 & CELLS A1 & A4 AFFECT THE VALUE OF CELL C6.

## TRACE DEPENDENTS



An Excel spreadsheet with columns A, B, and C, and rows 1 through 7. Cell A1 contains the value 2, A2 contains 3, A3 contains 5, and A4 contains 4. Cell C2 contains the formula =SUM(A1+A3) and cell C6 contains the formula =SUM(A1+A4). Blue arrows point from cell A2 to both C2 and C6. Another blue arrow points from cell A4 to C6. A large grey arrow points from this table towards the text on the right.

	A	B	C
1	2		
2	3		=SUM(A1+A3)
3	5		
4	4		
5			
6			=SUM(A1+A4)
7			

SHOW ARROW THAT INDICATE WHAT CELLS ARE AFFECTED BY THE VALUE OF THE CURRENTLY SELECTED CELL.

IN THIS EXAMPLE CELL C2 & C6 ARE AFFECTED BY THE VALUE OF CELL A2 & CELL C6 IS ALSO AFFECTED BY THE CELL A4.

# SHORTCUT KEYS

## PARTICULARS

- ☐ EDIT THE ACTIVE CELL
- ☐ CREATE A CHART
- ☐ INSERT CELL COMMENT
- ☐ FUNCTION DIALOGUE BOX
- ☐ INSERT A NEW WORKSHEET
- ☐ NAME MANAGER DIALOGUE BOX
- ☐ VISUAL BASIC EDITOR
- ☐ MACRO DIALOGUE BOX
- ☐ HIDE THE SELECTED COLUMNS
- ☐ UNHIDE THE COLUMNS
- ☐ HIDE THE SELECTED ROWS
- ☐ UNHIDE THE ROWS
- ☐ SELECT ALL CELLS WITH COMMENT

## KEYS

F<sub>2</sub>  
F<sub>11</sub>  
SHIFT + F<sub>2</sub>  
SHIFT + F<sub>3</sub>  
SHIFT + F<sub>11</sub>  
CTRL + F<sub>3</sub>  
ALT + F<sub>11</sub>  
ALT + F<sub>8</sub>  
CTRL + 0  
CTRL + SHIFT + 0  
CTRL + 9  
CTRL + SHIFT + 9  
CTRL + SHIFT + 0

# SHORTCUT KEYS

## PARTICULARS

## KEYS

<input type="checkbox"/>	DOWN FILL	CTRL + D
<input type="checkbox"/>	RIGHT FILL	CTRL + R
<input type="checkbox"/>	ENTER SUM FUNCTION IN CELL	ALT + =
<input type="checkbox"/>	EURO SYMBOL	ALT + 0128
<input type="checkbox"/>	CENT SYMBOL	ALT + 0162
<input type="checkbox"/>	POUND SYMBOL	ALT + 0163
<input type="checkbox"/>	YEN SYMBOL	ALT + 0165
<input type="checkbox"/>	ENTER NEW LINE IN ACTIVE CELL	ALT + ENTER
<input type="checkbox"/>	CURRENT DATE	CTRL + ;
<input type="checkbox"/>	CURRENT TIME	CTRL + SHIFT + ;
<input type="checkbox"/>	SHOW FORMULA	CTRL + `
<input type="checkbox"/>	SELECT ENTIRE COLUMN	CTRL + SPACEBAR
<input type="checkbox"/>	SELECT ENTIRE ROW	SHIFT + SPACEBAR

# SHORTCUT KEYS

## PARTICULARS

- ☐ APPLIES NUMBER FORMAT
- ☐ APPLIES CURRENCY FORMAT
- ☐ APPLIES PERCENTAGE FORMAT
- ☐ APPLIES EXPONENTIAL FORMAT
- ☐ APPLIES GENERAL NO. FORMAT
- ☐ APPLIES TIME FORMAT
- ☐ APPLIES DATE FORMAT
- ☐ APPLIES OUTLINE BORDER
- ☐ REMOVE OUTLINE BORDER

## KEYS

CTRL + SHIFT + !  
CTRL + SHIFT + \$  
CTRL + SHIFT + %  
CTRL + SHIFT + ^  
CTRL + SHIFT + ~  
CTRL + SHIFT + @  
CTRL + SHIFT + #  
CTRL + SHIFT + &  
CTRL + SHIFT + \_