IUCTI

EDUCATIONAL

FOUNDATION

Computer Training Institute

MICROSOFT

MS-EXCEL

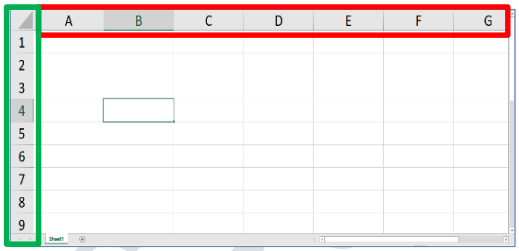
NOTES

INTRODUCTION

What is MS Excel?

The MS EXCEL is the part of Microsoft Office family Software there are following part of Microsoft Office family: 1. Microsoft Word 2. Microsoft Excel 3. Microsoft Access 4. Microsoft PowerPoint

Ms excel is a spread sheet (electronic spread sheet) made of rows and columns, crated by Microsoft.



Ms excel is used to:

Perform calculation

To analyse information

To summarize data

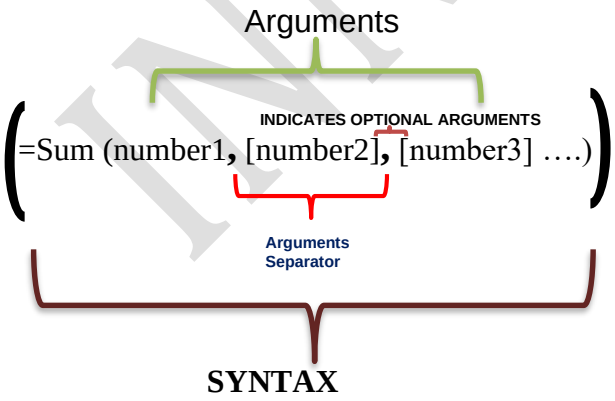
To format data

The excel file is treated as a work book in which we have many work sheets. There are **16,384(15k-16k)** columns named as: **A, B, C... Z, AA, AB, AC…** XFD and **1048576** rows in a work sheet. A cell is identified by its cell address. The cell address has the Column name followed by its row number. Example: **A1, A2, B1, B2.**

In excel every formula/function starts with equal symbol "=" (pre-processor directory)

"#" is showed if the formula is not performable, but the entered formula is performable in excel library, it will provide definition

SUM FUNCTION (SYNTAX)



	A	B	C
1			
2	**5**		
3			**6**
4			

(number1, [number2], [number3],…) are called arguments. Which are separated by commas (,)

In sum formulas IST no is Mandatory and others are optional [].

RELATIVE REFERENCE	ABSOLUTE REFERENCE
❋ It depends on cell Address where cells are added. ❋ **Dynamic** ❋ **Cells are added**	❋ It depends on cell value where cells are added. ❋ **=Sum(4+5+8)** ❋ **Constant/static. Values are added.**

CHAPTER NO 1

Math & Trigonometry

1.	**ABS FUNCTION**	**2.**	**SIN**	**3.**	**COS**
4.	**TAN**	**5.**	**MOD**	**6.**	**EVEN**
7.	**ODD**	**8.**	**POWER**	**9.**	**PRODUCT**
10.	**SQRT**	**11.**	**FACT**	**12.**	**ROUND**
13.	**TRUNC**	**14.**	**COMBIN**	**15.**	**ROMAN**
16.	**SUM IF**	**17.**	**COUNT IF**	**18.**	

1. ABS.

Returns the absolute value of number, a number without its sign.

syntax

=abs(number)

=abs(A2) 5

	A	B	C
1			
2	**-5**		
3		**5**	
4			

2. Sin.

Returns the sin of an Angle

syntax

=Sin(number)

=Sin(C4)

0.850904

	A	B	C
1			
2			
3			
4			45

3. COS

Returns the cosine of an Angle.

syntax

=COS (number)

=COS(C4)

0.154251

	A	B	C
1			
2			
3			
4			30

4. TAN

Returns the tangent of an Angle.

syntax

=TAN (number)

=TAN(C4)

0.32004

	A	B	C
1			
2			
3			
4			60

5. MOD

Returns the reminder of a number, after a number is divided by divisor.

syntax

=MOD (number, divisor)

=MOD (B2, C2)

1

	A	B	C
1			
2		**15**	**2**
3			
4		**1**	

6. Even

Rounds a positive number up and negative number down to the nearest even integer.

syntax

=EVEN(number)

=EVEN(B2)

14

	A	B	C
1			
2		**13**	
3			
4		**14**	

7. ODD

Rounds a positive number up and negative number down to the nearest odd integer.

syntax

=ODD(number)

=ODD (B2)

15

	A	B	C
1			
2		**14**	
3			
4		**15**	

8. POWER

Returns the result of a number raised to a power.

syntax

=POWER(number, power)

=POWER(B2, C2)

25

	A	B	C
1			
2		**5**	**2**
3			
4		**25**	

9. PRODUCT

Multiplies all the numbers given as arguments.

syntax

=PRODUCT (number1**,** [number2]**,** [number3] ….)

=PRODUCT (A2, B2, C2)

100

	A	B	C
1			
2	**10**	**5**	**2**
3			
4		**100**	

10.SQRT

Returns the square root of a number.

syntax

=SQRT(number)

=SQRT (B2)

	A	B	C
1			
2		**25**	
3			
4		**5**	

11.FACT

Returns the factorial of a number, equal ist,2^{nd},3^{rd},4^{th},….number.

syntax

=FACT(number)

=FACT (B2) like $(4 * 3 * 2 * 1)=24$

5

	A	B	C
1			
2		**4**	
3			
4		**24**	

12.ROUND

Rounds a number to a specified number of digits.

syntax

=SQRT (number, number_digits)

=SQRT (A2,B2)

120

	A	B	C
1			
2	**119.45**	**0**	
3			
4		**120**	

13.TRUNC

Truncates a number to an integer by removing the decimal, fractional part of the number.

syntax

=TRUNC (number,[number of digits])

=TRUNC (A2,B2)

120

	A	B	C
1			
2	**119.45**	**0**	
3			
4		**120**	

14.COMBIN

Returns the number of combination for a given no of items.

syntax

=COMBIN(number, number chosen)

= COMBIN (A2,B2)

	A	B	C
1			
2	**4**	**2**	
3			
4		**6**	

6

15.ROMAN

Converts an Arabic numerical to roman as text.

syntax

=ROMAN(number,[form])

=ROMAN(B2)

	A	B	C
1			
2		**2**	
3			
4		**ii**	

16.SUMIF

Adds the cells specified by Given condition or criteria.

syntax

= SUM IF(range,critera,[sum range])

=SUMIF(B3:B13,F4,C3:C13)

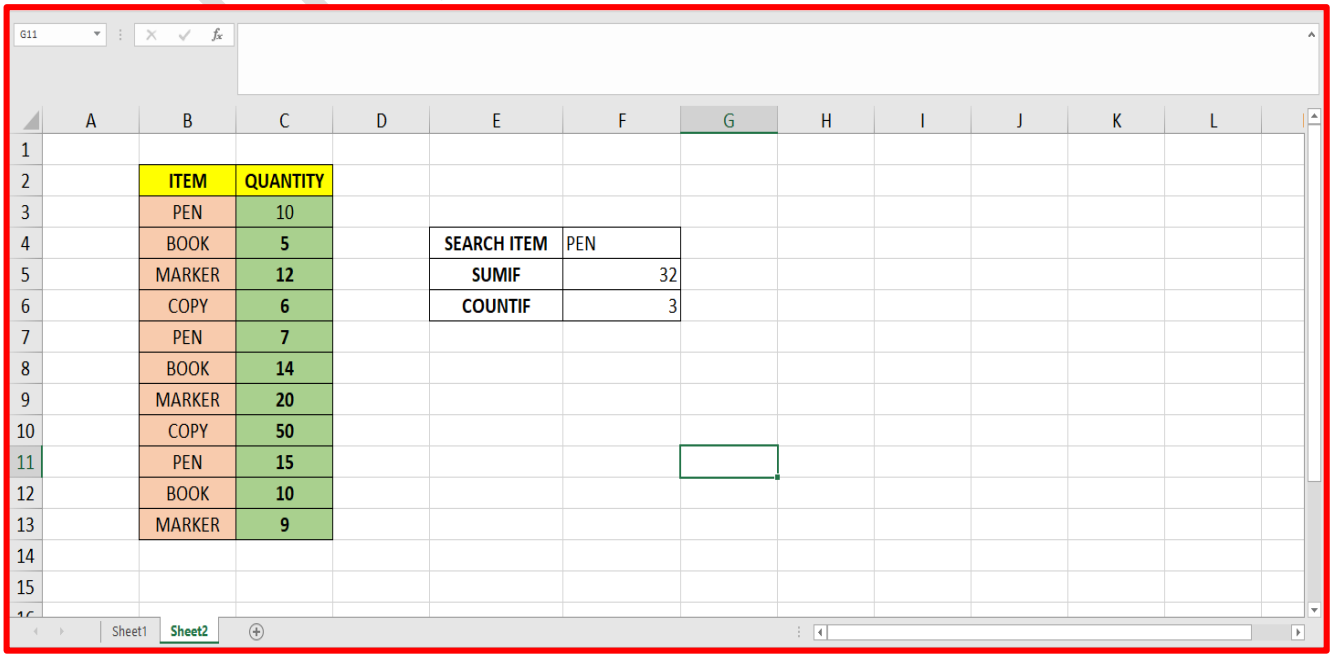
17.COUNTIF

The COUNTIF function counts the number of cells within a range that meet a single criterion that you specify.

syntax

= COUNTIF(range, criteria)

=COUNTIF(B3:B13,F4)



ITEM	QUANTITY
PEN	10
BOOK	5
MARKER	12
COPY	6
PEN	7
BOOK	14
MARKER	20
COPY	50
PEN	15
BOOK	10
MARKER	9

SEARCH ITEM	PEN
SUMIF	32
COUNTIF	3

CHAPTER NO 2

TEXT FUNCTIONS

1.	CHAR	2.	CONCATENATE	3.	EXACT
4.	FIND	5.	LEFT	6.	RIGHT
7.	MID	8.	TRIM	9.	LOWER
10.	UPPER	11.	PROPER	12.	LEN
13.	REPT	14.	TEXT	15.	REPLACE
16.	SUBSTITUTE				

1. CHAR

Returns the character specified by the number from the character set for your computer.(it includes no's from 1-255)

=CHAR (number)

=CHAR (B2)

A

	A	B	C
1			
2		**65**	
3			
4		**A**	

2. CONCATENATE

Joins several text strings into one text string.

=concatenate (text $_1$, [text$_2$]…)

=concatenate (A_2 , A_3)

INNOVATE-U

	A	B	C
1			
2	**Innovate-u**		
3	**computer**		
4		**Innovate-u computer**	

3. EXACT

Checks whether two text strings are exactly the same, and returns true or false. Exact in case-sensitive.

= exact (text$_1$,text$_2$)

=exact (A_1,C_3)

True

	A	B	C
1	IUCTI		IUCTI
2			
3			
4		**True**	

4. FIND

Returns the starting position of one text String within another text string.

=FIND (find_text, within text, [start no])

=FIND("P",B3,1)

=FIND("P",)

P

	A	B	C
1			
2		COMPUTER	
3			
4		P	

5. LEFT

Returns the specified number of character From the start of a text string.

=LEFT (text, number-characters)

=LEFT(B2,3)

COM

	A	B	C
1			
2		COMPUTER	
3			
4		COM	

6. RIGHT

Returns the specified number of character from the end of a text string.

= RIGHT (text, no. character)

= RIGHT (B2, 4)

UTER

	A	B	C
1			
2		COMPUTER	
3			
4		UTER	

7. MID

Returns the character from the MID of the text string given a starting position and length.

= MID (text, start_num,num_char)

=MID (B2,3,5)

MPUTE

	A	B	C
1			
2		COMPUTER	
3			
4		MPUTE	

8. TRIM

Remove all spaces from a text string except for single spaces between words.

=TRIM (text)

=TRIM (B2)

Innovate U

	A	B	C
1			
2		Innovate U	
3			
4		Innovate U	

9. LOWER

Converts all letters in a text string to lower case.

=LOWER (text)

= LOWER (B_2)

innovate u

	A	B	C
1			
2		**INNOVATE U**	
3			
4		**innovate u**	

10. UPPER

Converts all letters in a text string to UPPER case.

=UPPER (text)

=UPPER (B_2)

INNOVATE U

	A	B	C
1			
2		**innovate u**	
3			
4		**INNOVATE U**	

11. PROPER

Converts a text string to Proper case; the first letter in each word in upper case and all letters to lower case

= PROPER (text)

= PROPER (B_2)

Innovate u

	A	B	C
1			
2		**innovate u**	
3			
4		**Innovate u**	

12. LEN

Returns the number of character in the text string.

= LEN (text)

=LEN (B2)

8

	A	B	C
1			
2		**COMPUTER**	
3			
4		**8**	

13. REPT

Repeat text a given number of times

Use rept to fill a cell with a number

Of instance of text string.

= REPT (text,number_times)

=REPT (B2,3)

Hellow Hellow Hellow

	A	B	C
1			
2		**Hellow**	
3			
4		**Hellow Hellow Hellow**	

14. TEXT

Convert a text value to text in a specific number format

= TEXT (value, format text)

=TEXT (B2," DDDD")

Saturday

	A	B	C
1			
2		**15-03-2025**	
3			
4		**Saturday**	

15. REPLACE

Replace part of a text string with a different text string.

=Replace (old text, start_num, num_char,new_text)

=Replace(B2,3,3,C2)

COABCTER

	A	B	C
1			
2		**COMPUTER**	**ABC**
3			
4		**COABCTER**	

16. SUBSTITUTE

Replace existing text with new text in a text string.

=SUBSTITUTE(text,old_text,new_text,[instance_num])

CHAPTER NO 4

LOGICAL--FUNCTIONS

1.	IF
2.	AND
3.	OR

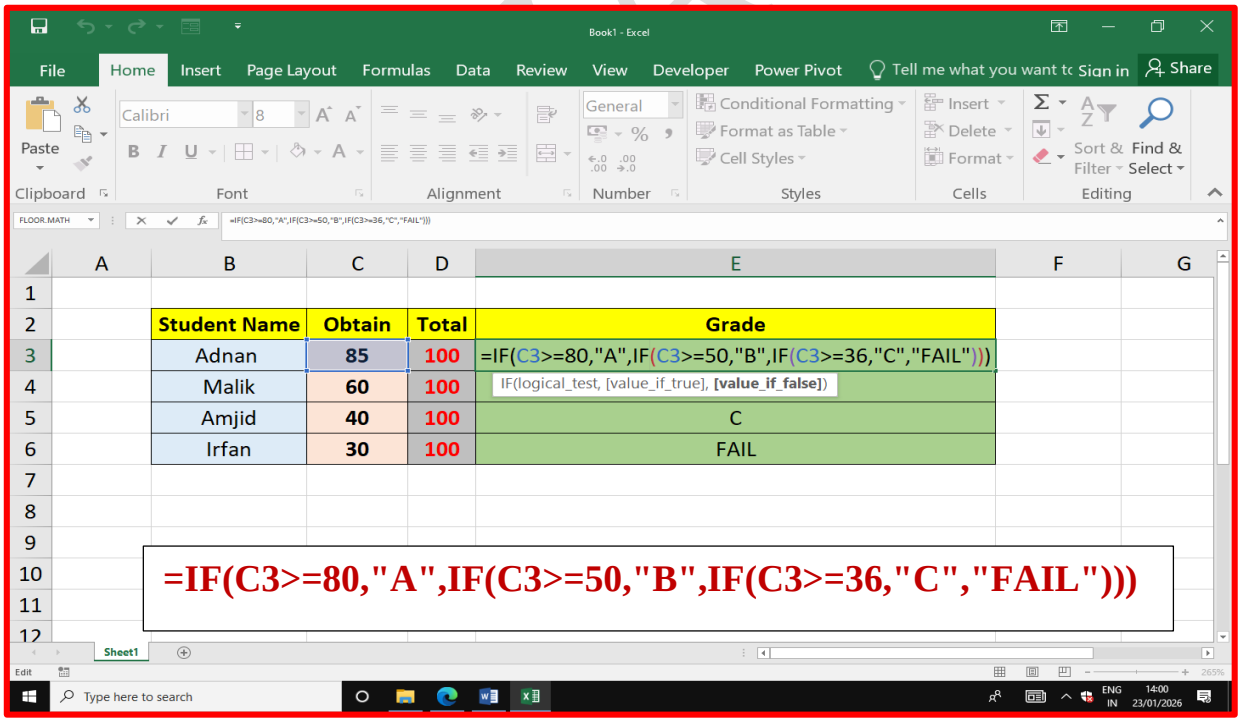
1. IF

Checks whether a condition is met, and return one value if true, and another value is falser.

Syntax

=IF(logical_test, [value_if_true], [value_if_false])

=IF(B2>=10," PASS"," FAIL")



Example.

- ✓ If a Student obtain marks in B3 cell "80" "equal "or "above", the grade is A.
- ✓ if the score is 50 to 80, the grade is B.
- ✓ if the score is 36 to 50, the grade is C.
- ✓ if the score is BELOW to 36, the grade is FAIL.

2. AND

Returns TRUE if all its arguments are TRUE; returns FALSE if one or more argument is FALSE.

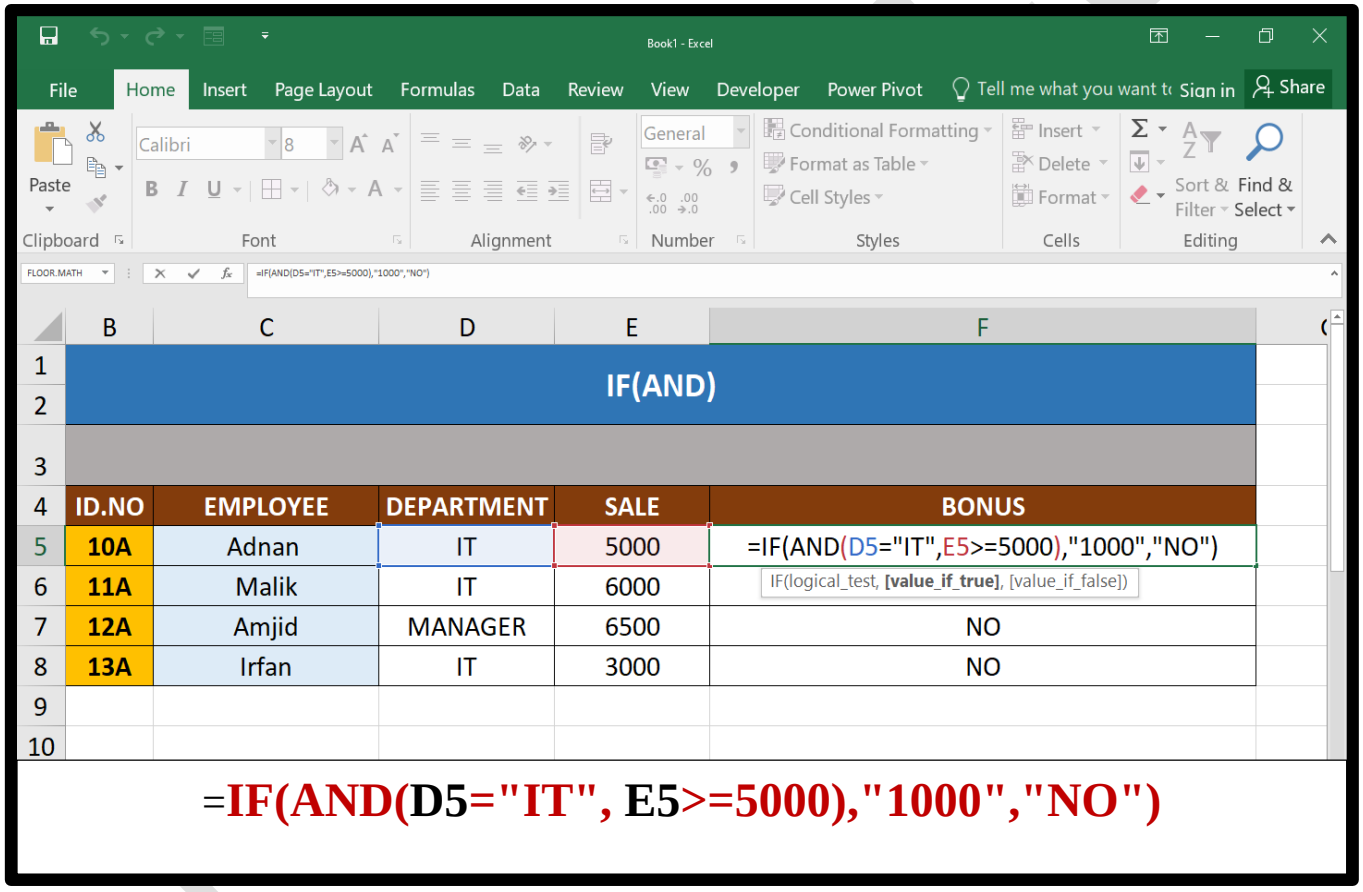
Syntax

AND(logical1,logical2, ...)

Logical1, logical2, ... are 1 to 255 conditions you want to test that can be either TRUE or FALSE.

=IF(AND(logical_test, [value_if_true], [value_if_false])

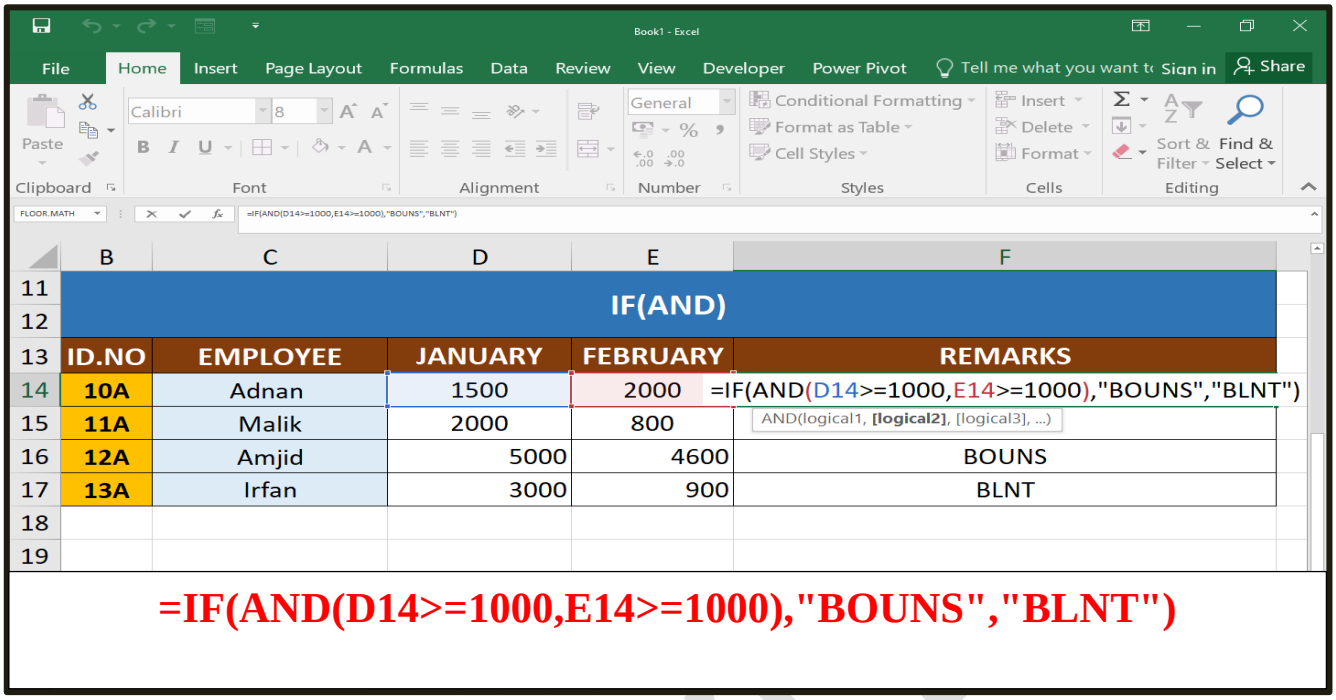
Example fist.



Example.

- ✓ If a EMPLOYEE from "IT" department and "sales" 5k or equal or above. [value_if_true] (he got bonus 1000 rs) if one argument fails, (he got no bonus).

Example 2nd



	B	C	D	E	F
11	IF(AND)				
12					
13	ID.NO	EMPLOYEE	JANUARY	FEBRUARY	REMARKS
14	10A	Adnan	1500	2000	=IF(AND(D14>=1000,E14>=1000),"BOUNS","BLNT")
15	11A	Malik	2000	800	AND(logical1, **[logical2]**, [logical3], ...)
16	12A	Amjid	5000	4600	BOUNS
17	13A	Irfan	3000	900	BLNT
18					
19					

=IF(AND(D14>=1000,E14>=1000),"BOUNS","BLNT")

Example.

- ✓ If a EMPLOYEE "sales" (1000 or equal or above).in January month, and February month
  [value_if_true] (he achieve bonus 1000 rs) if one argument fails,
  [value_if_false] (no blnt).

3. OR

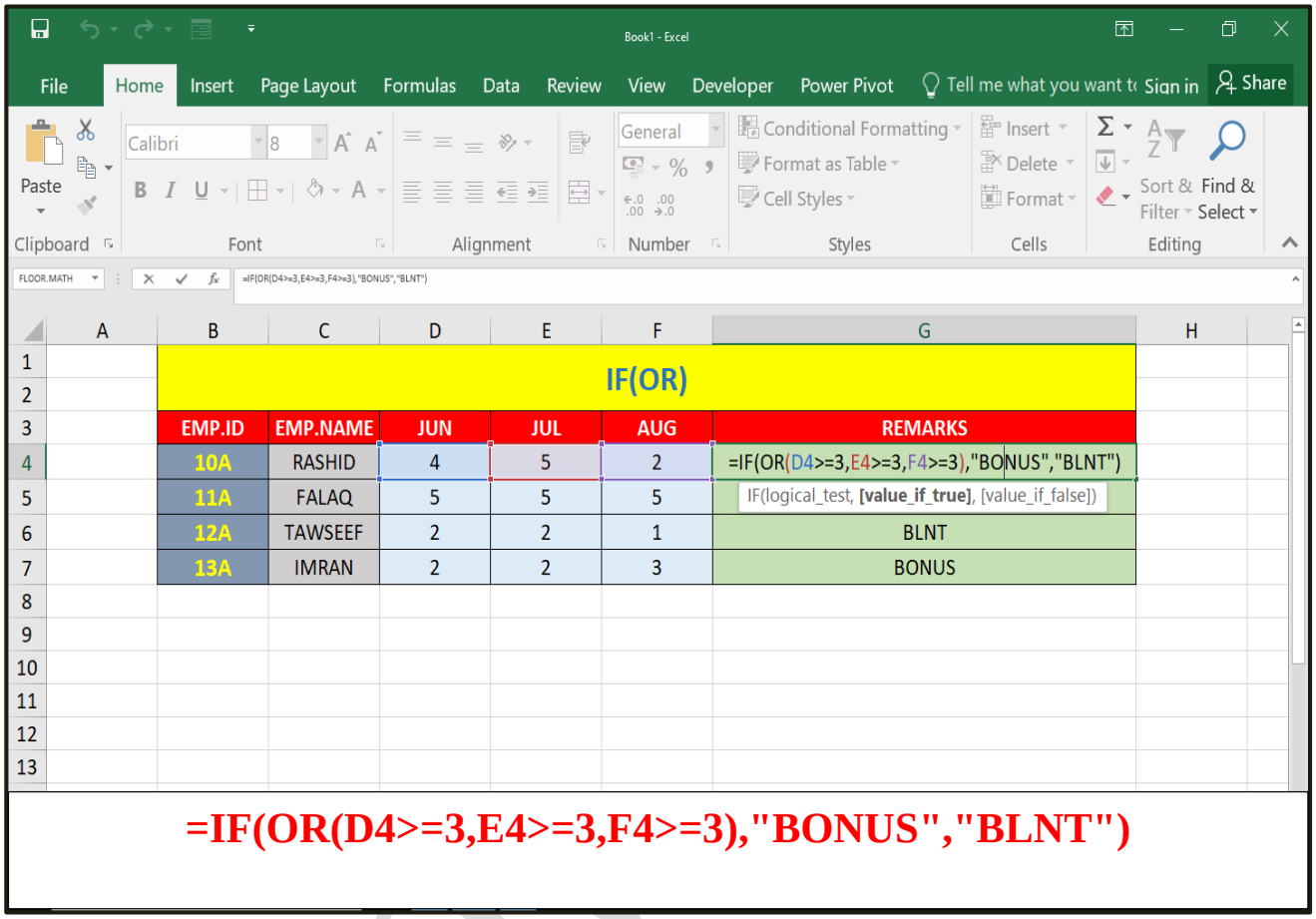
Checks whether any of the arguments are true, and return true or false, return false only if all arguments are false.

Syntax

OR(logical1,logical2, ...)

=IF(AND(logical_test, [value_if_true], [value_if_false])

Example fist.



Example.

- ✓ If an EMPLOYEE “sales” (3 CARS or equal or above).in June July and August Month.
- ✓ [value_if_true] (he achieve bonus) otherwise result value if false.

CHAPTER NO 4

FINANICAL--FUNCTIONS

1.	PMT- Per month transection
2.	IPMT- Interest Per month transection
3.	PPMT- Paid Per month transection

1. PMT

Calculates the payment for a loan based on constant payment and a constant interest rate.

Syntax

=PMT(rate,nper,pv,[fv],[type])

=PMT(B5/12,B6*12,B4)

FINANICAL FUNCTIONS

LOAN	15
RATE	2%
NPER	1

PMT	-	1.26
IPMT	-	0.03
PPMT	-	1.24

2. IPMT

Returns the interest payment for a given period for investment, based on periodic, constant payment and a constant interest rate.

Syntax

=IPMT(rate,per,nper,pv,[fv],[type])

=IPMT(B5/12,1,B6*12,B4)

3. PPMT

Returns the interest payment for a given period for investment, based on periodic, constant payment and a constant interest rate.

Syntax

=PPMT(rate,per,nper,pv,[fv],[type])

=PPMT(B5/12,1,B6*12,B4)

CHAPTER NO 5

STASTICAL—FUNCTIONS

1.	AVERAGE
2.	MIN(MINIMUM)
3.	MAX (MAXIMUM)
4.	COUNT
5.	COUNT A
6.	COUNTBLANK
7.	LARGE
8.	SMALL

1. AVERAGE

Returns the average (arithmetic mean) of its arguments, which can be numbers or names, array or references that contain numbers

syntax

=Average (number 1,[number2],[number3],…)

=Average (A1,B1,C1)

average=sum of values/no of values

	A	B	C
1	2	2	2
2			
3			
4		**2**	

2. MIN

Returns the smallest value in a set of values. Ignore logical values and text.

=MIN((number 1,[number2],[number3],…)

=MIN((A1,B1,C1)

20

	A	B	C
1	20	40	50
2			
3			
4		**20**	

3. MAX

Returns the smallest value in a set of values.
Ignore logical values and text.
=MAX((number 1,[number2],[number3],…)
=MAX ((A1,B1,C1)

50

	A	B	C
1	20	40	50
2		**M**	
3	**A**		**z**
4		**6**	

4. COUNT

Count the number of cell's in arrange that contain numbers.
=COUNT(value1,[value2],[value3],..)
=count(A1:C3)

6

	A	B	C
1	20	40	50
2		**100**	
3	**77**		**4**
4		**6**	

5. COUNTA

Count the number of non-empty cell's,
(cells with text, numbers, or symbols).
=COUNTA(value1,[value2],[value3],..)
=counta(A1:C3)

6

	A	B	C
1	20	40	50
2		**M**	
3	**A**		**z**
4		**6**	

6. COUNT BLANK

Count the number of empty (blank)cell's, in arrange.
=COUNTBLANK(value1,[value2],[value3],..)
=count blank (A1:C3)

3

	A	B	C
1	20	40	50
2		**M**	
3	**A**		**z**
4		**3**	

7. LARGE

Returns the k-Th largest value in a data set. e.g.
the fifth largest number.
=LARGE(A1:C3,3)

404

	A	B	C
1	120	404	50
2		**100**	
3	**500**		**700**
4		**404**	

8. SMALL

Returns the k-Th largest value in a data set. e.g.
the fifth largest number.
=SMALL (A1:C3,3)

120

	A	B	C
1	120	404	50
2		**100**	
3	**500**		**700**
4		**120**	

CHAPTER NO 6

STASTICAL—FUNCTIONS

1.	DAYS 360
2.	NOW
3.	DATE
4.	TIME
5.	DATED IF
6.	DAYS

1. DAYS 360

Return the number of days between two dates based on a 360-days year (twelve 30-days months)

=days360(start date, end-date)

2. NOW

Returns the current date and time formatted as a date and time.

=now()

3. DATE

Returns the number that represents the date in Ms-office excel date –time-code.

=date(year, month, day)

4. TIME

Converts hour's, minutes and seconds given as numbers to an excel serial no formatted with a time format.

=time(hour, minute, seconds)

5. DATED IF

It's is used to calculate the difference between two dates. Its bit of a hidden function (doesn't show up in the formula helper), but it works.

=dated if(start_date, end_date,unit)

6. DAYS

Return the number of days between two dates.

=days (start_date, end_date)

CHAPTER NO 7

LOOKUP AND REFERENCE—FUNCTIONS

1. VLOOKUP

Look for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be stored in an ascending order.
=vlookup(lookup_value, table_array,col_index_num,[range_lookup])

STUDENT DETAIL	
ID no	101
NAME	irfan
Courses	Adca
Address	Ganderbal

SHEET 1

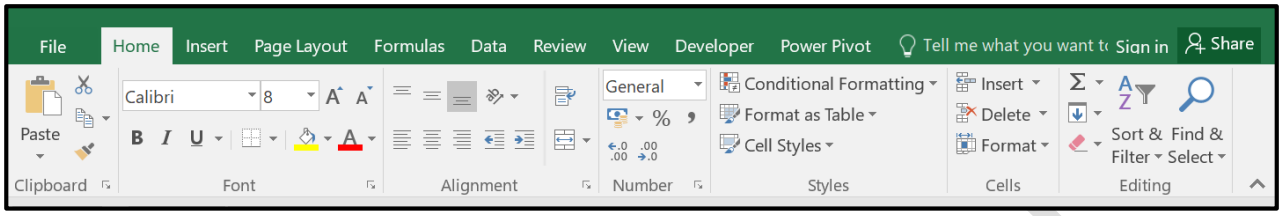
	A	B	C	D
1	*ID no*	*NAME*	*Courses*	*Address*
2	101	irfan	Adca	Ganderbal
3	102	Kamran	Adca	Srinagar
4	103	Rashid	Adca	Hazratbal
5	104	Furkan	Adca	Soura

SHEET 2

=VLOOKUP(C3,SHEET2!$A$1:$D$5,2,0)

Home Toolbars

The Home Toolbar is the first toolbar of MS Excel this toolbar always displays on the top of the MS Excel Screen like as:



1. Clipboard

This is same as MS Word. (Please see MS Word notes)

2. font

This is same as MS Word. (Please see MS Word notes)

3. Alignment

The alignment toolbar are very much useful MS excel this is useful for alignment of text with cells like as:

Top Align: Align text to top of the cell.

Middle Align: Align text so that it is a centred between the top and bottom of the cell.

Bottom Align: Align text to bottom of the cell.

Orientation: Rotate text to diagonal angle or vertical orientation.

Align Text Left: Align your text to the left.

Centre: Centre your Text.

Align Text Right: Align your text to the right.

Decrease Indent: Move your content closer to the cell border.

Increase Indent: Move your content farther away from the cell border

Wrap Text: Make all content visible within a cell by displaying it on multiple lines.

Merge & Centre: join the selected cells into one larger cell and centre the contents in the new lines.

4. Number

Number Format: Choose how the value in cell are displayed as percentage, as currency, as date or time etc.

Accounting Format: Choose an alternate currency format for the selected cells.

Percent Style: Display the value of the cell as a percentage (%).

Comma Style: Display the value of cell with a thousand separator.

Increase Decimal: Show more precise values showing more decimal places.

Decrease Decimal: Show less precise values showing more decimal places.

5. Styles with Cells Editing

Conditional Formatting: Highlight interesting cell emphasize usual value and visualize data using Data bar, Colour scales, Icon sets based on criteria.

Format as Table: Quickly format a range of cells and convert to a Table by choosing a pre-defined table style.

Cell Styles: Quickly format a cell by choosing from pre-defined style.

Insert: Click here to insert cells, row or columns in the sheet or table or to add a sheet in worksheet.

Delete: Delete row or columns from table or sheet.

Format: Change the row height or columns width, organize sheet or protects or hide cells.

Auto sum: Display the sum of selected cells directly after the selected cells.

Fill: You can fill cells in any direction and into any range of adjacent cells.

Clear: Delete everything from the cells or selectively remove the formatting the contents or the comments.

Sort Filter: You can sort selected data in ascending and descending order or you can temporarily filter out specific value.

Find Select: Find and selected specific text, formatting or type of information within the worksheet.

Insert Toolbars