

Some mathematical, statistical and logical functions in excel

Some Examples on the Mathematical Function

$e^{-1.5}$	=EXP(-1.5)	0.22313016
log(25)	=LOG(25)	1.397940009
ln(25)	=LN(25)	3.218875825
$\binom{10}{2}$	=COMBIN(10,2)	45
$\sqrt{25}$	=SQRT(25)	5
-10	=ABS(-10)	10
3^2	=POWER(3,2) =3^2	9

Some Examples on the Statistical Function

Example

Suppose we are interested in the number of children that a Saudi woman has and we take a sample of 20 women and obtain the following data on the number of children

2, 3, 2, 2, 0, 2, 3, 6, 3, 2, 2, 4, 3, 1, 3, 3, 3, 2, 1, 5

The screenshot shows an Excel spreadsheet with a column labeled 'N.children' in cell A1. The data values are: 2, 3, 2, 2, 0, 2, 3, 6, 3, 2, 2, 4, 3, 1, 3, 3, 3, 2, 1, 5. The cells are arranged in rows 1 through 21 of column A.

- Calculate the mean, median, variance, standard deviation, total, maximum, minimum and mode(s)

To achieve this in excel put the data in a column (A2:A21) or raw and use the following commands

Total	=SUM(A2:A21)		52
Mean	=AVERAGE(A2:A21)		2.6
Median	=MEDIAN(A2:A21)		2.5
Max	=MAX(A2:A21)		6
Min	=MIN (A2:A21)		0
Standard deviation for sample	=STDEV(A2:A21)	New in Excel 2010 =STDEV.S(A2:A21)	1.353358
Standard deviation for population	= STDEV P(A2:A21)	New in Excel 2010 =STDEV.P(A2:A21)	1.319091
Variance for sample	=VAR(A2:A21)	New in Excel 2010 =VAR.S(A2:A21)	1.831579
Variance for population	=VARP (A2:A21)	New in Excel 2010 =VAR.S(A2:A21)	1.74

- Frequency Table

N.children		Frequency
0	=COUNTIF(A2:A21,"0")	1
1	=COUNTIF(A2:A21,"1")	2
2	=COUNTIF(A2:A21,"2")	7
3	=COUNTIF(A2:A21,"3")	7
4	=COUNTIF(A2:A21,"4")	1
5	=COUNTIF(A2:A21,"5")	1
6	=COUNTIF(A2:A21,"6")	1

- Probability distributions

If $X \sim N(2,7)$, then Calculate

$P(X < 1.5)$	=NORMDIST(1.5,2,7,TRUE)	0.471528
$P(X < k) = 0.25, k?$	=NORMINV(0.25,2,7)	-2.72143

Example on the Logical Functions

Use if statement to print the status of the student ($Pass \geq 60$, $Fail < 60$). In creation exam using the following marks

	A		
1	Marks	Function	Grade
2	70	=IF(A2<60,"Fail","Pass")	Pass
3	85	=IF(A3<60,"Fail","Pass")	Pass
4	83	=IF(A4<60,"Fail","Pass")	Pass
5	25	=IF(A5<60,"Fail","Pass")	Fail
6	80	=IF(A6<60,"Fail","Pass")	Pass
7	98	=IF(A7<60,"Fail","Pass")	Pass
8	80	=IF(A8<60,"Fail","Pass")	Pass
9	72	=IF(A9<60,"Fail","Pass")	Pass
10	42	=IF(A10<60,"Fail","Pass")	Fail
11	32	=IF(A11<60,"Fail","Pass")	Fail