

THE UNOFFICIAL DST FUNCTION

REFERENCE

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1 DST – EXTRACT FROM DIST

Description

Dst inputs a DIST and returns an array or a selected element.

Usage

Dst(D)
Dst(D,n)
Dst(D,,p)
Dst(D,n,p)

Arguments

D	DIST or reference to a cell containing a DIST
n	Element number to be returned
p	Percentile ($0 \leq p \leq 1$) of the element to be returned

Details

Dst(D) alone returns the first element of the DIST. In an array formula, it returns successive elements to the array. As an argument to a function that takes an array, it returns the whole DIST as an array with dimensions (n,1) where n is the number of trials in the DIST.

If it's used as an array formula, the range must be vertical. For a horizontal range, wrap it with TRANSPOSE().

Dst(D,n) returns the n^{th} element. If $n=0$, it returns the average of the DIST.

Dst(D,n,p) returns the element matching the p^{th} percentile—if n is missing or not zero. If n is 0, p is ignored and the result is the average of the DIST.

Examples

=Dst(D1)	'First element of the DIST in D1
=Dst(D1,5)	'Fifth element
=Dst(D1,0)	'Average of the DIST

3 DIST ATTRIBUTES

Description

These functions return attributes of a single DIST. They should be used instead of wrapping with Excel functions.

Usage

`DstAvgVal(D)`
`DstMaxVal(D)`
`DstMinVal(D)`
`DstName(D)`
`DstNumberOfTrials(D)`
`DstOrigin(D)`
`DstPercentile(D,p)`
`DstType(D)`

Arguments

D DIST or reference to a cell containing a DIST
p Percentile element to be returned ($0 \leq p \leq 1$)

Details

The attributes are taken from the XML attributes in the DIST string, except for `DstPercentile` which is calculated.

Some of these calculations can be done using Excel, though it's not encouraged. The DIST functions just read the DIST attributes whereas the Excel functions have to unpack the DIST and do the calculation. For reference, the Excel formulations are:

`Average(Dst(D))`
`Max(Dst(D))`
`Min(Dst(D))`
`Percentile(Dst(D),p)`

Examples

`=DstAvgVal(D)` `Average of the DIST in D`
`=DstMaxVal(DstCreate(B1:B1000))` `Maximum of B1:B1000`
`=DstName(D)` `Name from the XML attributes in D`
`=DstPercentile(D,.9)` `The 90th percentile`

4 REDUCING OPERATIONS ON MULTIPLE DISTs

Description

These functions operate on multiple DISTs element-by-element and return correspondingly sized arrays.

Usage

```
DstAverage(D1,D2)
DstMax(D1,D2)
DstMin(D1,D2)
DstProduct(D1,D2)
DstSum(D1,D2)
DstSumProduct(D1,D3)
```

Arguments

D1, D2, D3 DIST or a Range of DISTs, or a number or a range of DISTs and numbers. D2 is optional.

Details

These functions operate on two or more numbers or DISTs element-by-element, to produce an array with as many elements as each of the argument DISTs. The DISTs must be all the same size (`DstNumberOfTrials` must be the same for all of them).

The dimensions of the arguments are irrelevant. All the DISTs and numbers are accumulated into the one result array.

DstSumProduct is the exception; it requires two conforming arrays of DISTs or numbers as arguments. It first reduces the two argument arrays into one array the same size by multiplication, then reduces that into a single array by addition.

Examples

```
=DstCreate(DstAverage(D1,D2)) `Average of D1, D2
=DstCreate(DstMin(D1:D2))   `Min of DISTs in D1 to D2
=DstCreate(DstMax(D1,.5))   `Max of DIST in D1 and .5
=DstCreate(DstProduct(D1,D2)) `D1 * D2
=DstCreate(DstSum(D1:D2))   `Sum of DISTs in D1 to D2
=DstCreate(DstSumProduct(units,prices)) `Total Revenue
```