| Functions | Syntax | Description |
| :---: | :---: | :---: |
| DATE | =DATE (year,month,day) | Returns the serial number of a particular date |
| DATEVALUE | = DATEVALUE(date_text) | Converts a date in the form of text to a serial number |
| DAY | =DAY(serial_number) | Converts a serial number to a day of the month |
| HOUR | =HOUR(serial_number) | Converts a serial number to an hour |
| MINUTE | =MINUTE(serial_number) | Converts a serial number to a minute |
| MONTH | =MONTH(serial_number) | Converts a serial number to a month |
| NOW | $=$ NOW() | Returns the serial number of the current date and time |
| SECOND | =SECOND(serial_number) | Converts a serial number to a second |
| TIME | =TIME(hour,minute,second) | Returns the serial number of a particular time |
| TIMEVALUE | =TIMEVALUE(time_text) | Converts a time in the form of text to a serial number |
| TODAY | $=$ TODAY() | Returns the serial number of today's date |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| YEAR | =YEAR(serial_number) | Converts a serial number to a year |
| CELL | =CELL(info_type, [reference]) | Returns information about the formatting, location, or contents of a cell |
| ISBLANK | $=$ ISBLANK(value) | Returns TRUE if the value is blank |
| ISERROR | =ISERROR(value) | Returns TRUE if the value is any error value |
| ISNONTEXT | = ISNONTEXT(value) | Returns TRUE if the value is not text |
| ISNUMBER | = ISNUMBER(value) | Returns TRUE if the value is a number |
| ISTEXT | $=$ ISTEXT(value) | Returns TRUE if the value is text |
| AND | = AND(logical1,logical2,...) | Returns TRUE if all of its arguments are TRUE |
| FALSE | =FALSE | Returns the logical value FALSE |
| IF | = IF (logical_test, [value_if_true], [value_if_false]) | Specifies a logical test to perform |
| IFERROR | =IFERROR(value, value_if_error) | Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| NOT | = NOT(logical) | Reverses the logic of its argument |
| OR | =OR(logical1,logical2,...) | Returns TRUE if any argument is TRUE |
| TRUE | $=$ TRUE | Returns the logical value TRUE |
| ADDRESS | =ADDRESS(row_num, column_num, [abs_num], [a1], [sheet_text]) | Returns a reference as text to a single cell in a worksheet |
| COLUMN | $=\mathrm{COLUMN}($ [reference]) | Returns the column number of a reference |
| COLUMNS | =COLUMNS(array) | Returns the number of columns in a reference |
| HLOOKUP | = HLOOKUP(lookup_value,tab le_array,row_index_num,[ran ge_lookup]) | Looks in the top row of an array and returns the value of the indicated cell |
| INDEX | $\begin{gathered} =\text { INDEX(array,row_num,[colu } \\ \text { mn_num]) }-2 \text { types } \end{gathered}$ | Uses an index to choose a value from a reference or array |
| INDIRECT | = INDIRECT(ref_text,a1) | Returns a reference indicated by a text value |
| LOOKUP | =LOOKUP(lookup_value, array) - 2 types | Looks up values in a vector or array |
| MATCH | =MATCH(lookup_value,looku p_array,match_type) | Looks up values in a reference or array |

## Description

$=$ OFFSET(reference,rows,cols, Returns a reference offset from a
OFFSET height,width) given reference

Returns the row number of a reference

Returns the number of rows in a
ROWS $=$ ROWS(array) reference
=VLOOKUP(lookup_value,tab Looks in the first column of an le_array,col_index_num,[rang array and moves across the row to
e_lookup]) return the value of a cell
VLOOKUP
$=\operatorname{ROW}([$ reference $])$

Returns the absolute value of a

ABS

PRODUCT

RAND

RANDBETWEEN

ROUND

ROUNDDOWN

ROUNDUP
number
$=$ RAND()
=RANDBETWEEN(bottom,to
=ABS(number)
= PRODUCT(number1,number

$$
2, \ldots)
$$

p)
$=$ ROUND(number,num_digits Rounds a number to a specified number of digits
=ROUNDDOWN(number,nu Rounds a number down, toward m_digits) zero
$=$ ROUNDUP(number,num_di Rounds a number up, away from gits)
zero

| Functions | Syntax | Description |
| :---: | :---: | :---: |
| SUBTOTAL | $\begin{aligned} & =\text { SUBTOTAL(function_num,r } \\ & \text { ef1,...) } \end{aligned}$ | Returns a subtotal in a list or database |
| SUM | $=$ SUM(number1,number2,...) | Adds its arguments |
| SUMIF | $\begin{gathered} =\mathrm{SUMIF} \text { (range,criteria, }[\text { sum } \\ \text { range }] \text { ) } \end{gathered}$ | Adds the cells specified by a given criteria |
| SUMIFS | =SUMIFS(sum_range,criteria _range,criteria,...) | Adds the cells in a range that meet multiple criteria |
| SUMPRODUCT | =SUMPRODUCT(array1,array 2,[array3],...) | Returns the sum of the products of corresponding array components |
| AVERAGE | $\begin{gathered} =\text { AVERAGE(number1,number } \\ 2, \ldots) \end{gathered}$ | Returns the average of its arguments |
| AVERAGEIF | $\begin{gathered} \text { =AVERAGEIF(range,criteria,[ } \\ \text { average_range]) } \end{gathered}$ | Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria |
| COUNT | =COUNT(value1,value2,...) | Counts how many numbers are in the list of arguments |
| COUNTA | =COUNTA(value1,value2,...) | Counts how many values are in the list of arguments |
| COUNTBLANK | =COUNTBLANK(range) | Counts the number of blank cells within a range |
| COUNTIF | = COUNTIF(range,criteria) | Counts the number of cells within a range that meet the given criteria |

## Description

# =COUNTIFS(criteria_range,cr Counts the number of cells within 

COUNTIFS iteria,...) a range that meet multiple criteria

Returns the maximum value in a =MAX(number1,number2,...) list of arguments =MEDIAN(number1,number2, Returns the median of the given MEDIAN ...) numbers

Returns the minimum value in a $=\mathrm{MIN}$ (number1,number2,...) list of arguments

Joins several text items into one $=$ CONCATENATE(text1,text2, text item. Easier to use ' $\&$ ' instead CONCATENATE

| EXACT | = EXACT(text1,text2) | Checks to see if two text values are identical |
| :---: | :---: | :---: |
| FIND | $=$ FIND(find_text,within_text, start_num) | Finds one text value within another (case-sensitive) |
| LEFT | =LEFT(text,num_chars) | Returns the leftmost characters from a text value |
| LEN | $=$ LEN(text) | Returns the number of characters in a text string |
| LOWER | =LOWER(text) | Converts text to lowercase |
| MID | $\begin{gathered} =\mathrm{MID}(\text { text,start_num,num_ch } \\ \text { ars) } \end{gathered}$ | Returns a specific number of characters from a text string starting at the position you specify |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| PROPER | = PROPER(text) | Capitalizes the first letter in each word of a text value |
| REPLACE | $\begin{gathered} =\text { REPLACE(old_text,start_nu } \\ \text { m,num_chars,new_text) } \end{gathered}$ | Replaces characters within text |
| RIGHT | = RIGHT(text,num_chars) | Returns the rightmost characters from a text value |
| SEARCH | =SEARCH(find_text,within_te xt,start_num) | Finds one text value within another (not case-sensitive) |
| TEXT | =TEXT(value,format_text) | Formats a number and converts it to text |
| TRIM | $=$ TRIM (text) | Removes spaces from text |
| UPPER | $=$ UPPER(text) | Converts text to uppercase |
| DGET | = DGET(database,field, criteria) | Extracts from a database a single record that matches the specified criteria |
| DSUM | =DSUM(database,field,criteria ) | Adds the numbers in the field column of records in the database that match the criteria |
| DAYS360 | =DAYS360(start_date,end_da te,method) | Calculates the number of days between two dates based on a 360day year |
| EDATE | =EDATE(start_date,months) | Returns the serial number of the date that is the indicated number |



$$
\begin{aligned}
& =\text { CONVERT(number,from_un } \\
& \text { it,to_unit) }
\end{aligned}
$$

## Description

Converts a number from one measurement system to another

DELTA =DELTA(number1,number2) Tests whether two values are equal
=ERF(lower_limit,upper_limi

ERF

ERFC $=\operatorname{ERFC}(x)$

GESTEP =GESTEP(number,step)
=AMORDEGRC(cost,date_pur Returns the depreciation for each chased,first_period,salvage,pe accounting period by using a riod,rate,basis) depreciation coefficient
=AMORLINC(cost,date_purch ased,first_period,salvage,perio Returns the depreciation for each d,rate,basis) accounting period
AMORLINC

DOLLARDE | $=$ DOLLARDE(fractional_dolla |
| :---: |
| r,fraction) |

Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number

Converts a dollar price, expressed =DOLLARFR(decimal_dollar,f as a decimal number, into a dollar price, expressed as a fraction

Returns the straight-line depreciation of an asset for one period

## Description

SYD =SYD(cost,salvage,life,per)
Returns the sum-of-years' digits depreciation of an asset for a specified period

Returns a number corresponding to an error type

Returns information about the current operating environment

Returns TRUE if the value is any error value except \#N/A

Returns TRUE if the number is even

Returns TRUE if the value is a logical value

Returns TRUE if the value is the \#N/A error value

Returns TRUE if the number is odd

Returns TRUE if the value is a reference

Returns a value converted to a number

Returns the error value \#N/A

| Functions | Syntax | Description |
| :---: | :---: | :---: |
| TYPE | $=$ TYPE(value) | Returns a number indicating the data type of a value |
| CHOOSE | $\begin{aligned} & =\text { CHOOSE(index_num, value1, } \\ & \text { value2,...) } \end{aligned}$ | Chooses a value from a list of values |
| GETPIVOTDATA | $\begin{gathered} \text { = GETPIVOTDATA(data_field, } \\ \text { pivot_table,field,item,...) } \end{gathered}$ | Returns data stored in a PivotTable report |
| HYPERLINK | $\begin{aligned} & =\text { HYPERLINK(link_location,f } \\ & \text { riendly_name) } \end{aligned}$ | Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet |
| TRANSPOSE | =TRANSPOSE(array) | Returns the transpose of an array |
| CEILING | =CEILING(number,significanc <br> e) | Rounds a number to the nearest integer or to the nearest multiple of significance |
| CEILING.PRECISE | =CEILING.PRECISE(number, significance) | Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up. |
| EVEN | = EVEN(number) | Rounds a number up to the nearest even integer |
| EXP | = EXP(number) | Returns e raised to the power of a given number |
| FACT | =FACT(number) | Returns the factorial of a number |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| FLOOR | =FLOOR(number,significance ) | Rounds a number down, toward zero |
| FLOOR.PRECISE | $=\underset{\text { gnificance) }}{=\text { FLOOR.PRECISE(number,si }}$ | Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up. |
| GCD | $=\mathrm{GCD}$ (number1,number2,...) | Returns the greatest common divisor |
| INT | $=$ INT(number) | Rounds a number down to the nearest integer |
| ISO.CEILING | $=\begin{gathered}\text { cance) }\end{gathered}$ | Returns a number that is rounded up to the nearest integer or to the nearest multiple of significance |
| LCM | $=\mathrm{LCM}$ (number1,number2,...) | Returns the least common multiple |
| MOD | $=\mathrm{MOD}$ (number,divisor) | Returns the remainder from division |
| MROUND | =MROUND(number,multiple) | Returns a number rounded to the desired multiple |
| ODD | $=\mathrm{ODD}$ (number) | Rounds a number up to the nearest odd integer |
| PI | $=\mathrm{PI}()$ | Returns the value of pi |

division
Returns the integer portion of a

POWER = POWER(number,power)
=QUOTIENT(numerator,deno minator)
QUOTIENT


## Description

Returns the result of a number raised to a power

SERIESSUM

SUMSQ

TRUNC

AVERAGEA

AVERAGEIFS

GEOMEAN

INTERCEPT
-

AVERAGEA

| RIESSUM | $\begin{array}{c}\text { SERIESSUM(x,n,m, coefficie } \\ \text { nts) }\end{array}$ | $\begin{array}{c}\text { Returns the sum of a power series } \\ \text { based on the formula }\end{array}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| SIGN | $=$ SIGN(number) | Returns the sign of a number |


| RIESSUM | $\begin{array}{c}\text { SERIESSUM(x,n,m, coefficie } \\ \text { nts) }\end{array}$ | $\begin{array}{c}\text { Returns the sum of a power series } \\ \text { based on the formula }\end{array}$ |
| :--- | :---: | :---: | :---: | :---: |
| SIGN | $=$ SIGN(number) | Returns the sign of a number |

Returns the average of its
=AVERAGEA(value1,value2,... arguments, including numbers, text, and logical values

Returns the average (arithmetic mean) of all cells that meet multiple criteria.

Returns the geometric mean
$=$ INTERCEPT(known_y's,kno Returns the intercept of the linear
wn_x's)
regression line

LARGE

LINEST

LOGEST

MAXA =MAXA(value1,value2,...)

MINA $=$ MINA(value1,value2,...)
=MINA(value1,value2,...) x's,const,stats)

## Description

Returns the k-th largest value in a data set
=LINEST(known_y's,known_ Returns the parameters of a linear trend

Returns the maximum value in a
list of arguments, including numbers, text, and logical values

Returns the smallest value in a list of arguments, including numbers, text, and logical values

Returns a vertical array of the most
=MODE.MULT(number1,num frequently occurring, or repetitive ber2,...) values in an array or range of data
$=$ MODE.SNGL(number1,num Returns the most common value in ber2,...) a data set
$=$ PROB(x_range,prob_range,l Returns the probability that values ower_limit,upper_limit) in a range are between two limits
$=$ RANK.AVG(number,ref,orde Returns the rank of a number in a r)
list of numbers

Returns the rank of a number in a
RANK.EQ = RANK.EQ(number,ref,order) list of numbers

| Functions | Syntax | Description |
| :---: | :---: | :---: |
| SKEW | =SKEW(number1,number2,...) | Returns the skewness of a distribution |
| SLOPE | $\begin{gathered} =\operatorname{SLOPE}\left(k n o w n \_y ' s, k n o w n \_x '\right. \\ \text { s) } \end{gathered}$ | Returns the slope of the linear regression line |
| SMALL | $=$ SMALL(array,k) | Returns the k-th smallest value in a data set |
| STANDARDIZE | $\begin{aligned} & =\text { STANDARDIZE(x,mean,stan } \\ & \text { dard_dev) } \end{aligned}$ | Returns a normalized value |
| TREND | =TREND(known_y's,known_x 's,new_x's,const) | Returns values along a linear trend |
| CHAR | $=$ CHAR(number) | Returns the character specified by the code number |
| CLEAN | $=$ CLEAN(text) | Removes all nonprintable characters from text |
| CODE | $=$ CODE(text) | Returns a numeric code for the first character in a text string |
| DOLLAR | =DOLLAR(number,decimals) | Converts a number to text, using the \$ (dollar) currency format |
| FIXED | $\begin{gathered} =\text { FIXED(number,decimals,no } \\ \text { _commas) } \end{gathered}$ | Formats a number as text with a fixed number of decimals |
| PHONETIC | =PHONETIC(reference) | Extracts the phonetic (furigana) characters from a text string |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| REPT | = REPT(text,number_times) | Repeats text a given number of times |
| SUBSTITUTE | $\begin{gathered} =\text { SUBSTITUTE(text,old_text,n } \\ \text { ew_text,instance_num) } \end{gathered}$ | Substitutes new text for old text in a text string |
| T | $=\mathrm{T}$ (value) | Converts its arguments to text |
| VALUE | =VALUE(text) | Converts a text argument to a number |
| BINOMDIST | =BINOMDIST(number_s,trial s,probability_s,cumulative) | Returns the individual term binomial distribution probability |
| CHIDIST | = CHIDIST(x,deg_freedom) | Returns the one-tailed probability of the chi-squared distribution |
| CHIINV | =CHIINV(probability,deg_free dom) | Returns the inverse of the onetailed probability of the chisquared distribution |
| CHITEST | $\begin{aligned} & =\text { CHITEST(actual_range,expe } \\ & \text { cted_range) } \end{aligned}$ | Returns the test for independence |
| CONFIDENCE | =CONFIDENCE(alpha,standar d_dev,size) | Returns the confidence interval for a population mean |
| FTEST | =FTEST(array1,array2) |  |
| LOGINV | =LOGINV(probability,mean,st andard_dev) | Returns the inverse of the lognormal cumulative distribution |

## Description

=LOGNORMDIST(x,mean,sta Returns the cumulative lognormal ndard_dev)
distribution
LOGNORMDIST
$=\mathrm{MODE}$ (number1,number2,... Returns the most common value in
a data set
MODE

NORMDIST
=NORMDIST(x,mean,standar Returns the normal cumulative
d_dev,cumulative) distribution
=NORMINV(probability,mean Returns the inverse of the normal
NORMINV ,standard_dev) cumulative distribution

NORMSDIST =NORMSDIST(z) cumulative distribution

Returns the inverse of the standard
NORMSINV =NORMSINV(probability) normal cumulative distribution

| PERCENTILE | = PERCENTILE(array,k) | Returns the k-th percentile of values in a range |
| :---: | :---: | :---: |
| PERCENTRANK | =PERCENTRANK(array,x,sign ificance) | Returns the percentage rank of a value in a data set |
| POISSON | $=$ POISSON( x, mean, cumulativ <br> e) | Returns the Poisson distribution |
| QUARTILE | =QUARTILE(array,quart) | Returns the quartile of a data set |
| RANK | =RANK(number,ref,order) | Returns the rank of a number in a list of numbers |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| STDEV | $=\underset{\text { ) }}{=S T D E V(n u m b e r 1, n u m b e r 2, \ldots}$ | Estimates standard deviation based on a sample |
| STDEVP | $\begin{gathered} =\text { STDEVP(number1,number2, } \\ . . .) \end{gathered}$ | Calculates standard deviation based on the entire population |
| TDIST | =TDIST(x,deg_freedom,tails) | Returns the Student's tdistribution |
| TINV | $=$ TINV(probability,deg_freedo m) | Returns the inverse of the Student's t-distribution |
| VAR | =VAR(number1,number2,...) | Estimates variance based on a sample |
| VARP | = VARP(number1,number2,...) | Calculates variance based on the entire population |
| DAVERAGE | $\begin{aligned} & =\text { DAVERAGE(database,field,c } \\ & \text { riteria) } \end{aligned}$ | Returns the average of selected database entries |
| DCOUNT | =DCOUNT(database,field, crite ria) | Counts the cells that contain numbers in a database |
| DCOUNTA | $=$ DCOUNTA(database,field,cri teria) | Counts nonblank cells in a database |
| DMAX | =DMAX(database,field,criteria ) | Returns the maximum value from selected database entries |
| DMIN | $=\mathrm{DMIN}(\text { database,field, criteria }$ | Returns the minimum value from selected database entries |

## Description

Multiplies the values in a particular field of records that match the criteria in a database

Estimates the standard deviation based on a sample of selected database entries

Calculates the standard deviation
=DSTDEVP(database,field,crit eria)
selected database entries

Estimates variance based on a sample from selected database entries

Calculates variance based on the entire population of selected database entries

Returns the error function

Returns the complementary ERF function integrated between $x$ and infinity

Returns the depreciation of an asset for a specified period by using the fixed-declining balance method

Returns the depreciation of an asset for a specified period by using the double-declining balance $=\mathrm{DDB}$ (cost,salvage,life,period, method or some other method that
DDB factor) you specify

| Functions | Syntax | Description |
| :---: | :---: | :---: |
| EFFECT | $=\mathrm{EFFECT}(\text { nominal_rate,npery }$ | Returns the effective annual interest rate |
| FV | = FV(rate,nper,pmt,pv,type) | Returns the future value of an investment |
| IPMT | $\begin{aligned} & =I P M T(\text { rate,per,nper,pv,fv,typ } \\ & \text { e) } \end{aligned}$ | Returns the interest payment for an investment for a given period |
| IRR | $=$ IRR(values,guess) | Returns the internal rate of return for a series of cash flows |
| MIRR | =MIRR(values,finance_rate,re invest_rate) | Returns the internal rate of return where positive and negative cash flows are financed at different rates |
| NOMINAL | $=\underset{\text { ) }}{=\text { NOMINAL_effect_rate,npery }}$ | Returns the annual nominal interest rate |
| NPER | =NPER(rate,pmt,pv,fv,type) | Returns the number of periods for an investment |
| NPV | =NPV(rate,value1,value2,...) | Returns the net present value of an investment based on a series of periodic cash flows and a discount rate |
| PV | $=P V($ rate,nper,pmt,fv,type) | Returns the present value of an investment |
| RATE | $\begin{gathered} =\text { RATE(nper,pmt,pv,fv,type,gu } \\ \text { ess) } \end{gathered}$ | Returns the interest rate per period of an annuity |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| YIELD | $=$ YIELD(settlement, maturity,r ate,pr,redemption,frequency,b asis) | Returns the yield on a security that pays periodic interest |
| AREAS | =AREAS(reference) | Returns the number of areas in a reference |
| RTD | $\begin{gathered} =\text { RTD(progID,server,topic1,to } \\ \text { pic2,... } \end{gathered}$ | Retrieves real-time data from a <br> program that supports COM automation (Automation: A way to work with an application's objects from another application or development tool. Formerly called OLE Automation, Automation is an industry standard and a feature of the Component Object Model (COM).) |
| AGGREGATE | =AGGREGATE(function_num ,options,array,k) | Returns an aggregate in a list or database |
| COMBIN | $\begin{gathered} =\text { COMBIN(number,number_c } \\ \text { hosen) } \end{gathered}$ | Returns the number of combinations for a given number of objects |
| COS | $=$ COS(number) | Returns the cosine of a number |
| COSH | $=\mathrm{COSH}$ (number) | Returns the hyperbolic cosine of a number |
| FACTDOUBLE | =FACTDOUBLE(number) | Returns the double factorial of a number |
| LN | $=\mathrm{LN}$ (number) | Returns the natural logarithm of a number |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| LOG | =LOG(number,base) | Returns the logarithm of a number to a specified base |
| LOG10 | =LOG10(number) | Returns the base-10 logarithm of a number |
| MULTINOMIAL | $\begin{aligned} & =\text { MULTINOMIAL(number1,n } \\ & \text { umber2,...) } \end{aligned}$ | Returns the multinomial of a set of numbers |
| SIN | $=$ SIN(number) | Returns the sine of the given angle |
| SINH | $=$ SINH(number) | Returns the hyperbolic sine of a number |
| SUMX2MY2 | $\begin{gathered} =\text { SUMX2MY2(array_x,array_ } \\ y) \end{gathered}$ | Returns the sum of the difference of squares of corresponding values in two arrays |
| SUMX2PY2 | $=\underset{\text { ) }}{=\text { SUMX_PY_(array_x,array_y }}$ | Returns the sum of the sum of squares of corresponding values in two arrays |
| SUMXMY2 | =SUMXMY2(array_x,array_y) | Returns the sum of squares of differences of corresponding values in two arrays |
| TAN | $=\mathrm{TAN}$ (number) | Returns the tangent of a number |
| TANH | $=$ TANH(number) | Returns the hyperbolic tangent of a number |
| NORM.S.INV | =NORM.S.INV(probability) | Returns the inverse of the standard normal cumulative distribution |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| AVEDEV | $\begin{gathered} =\operatorname{AVEDEV}(\text { number1,number2, } \\ \text {...) } \end{gathered}$ | Returns the average of the absolute deviations of data points from their mean |
| BETA.DIST | =BETA.DIST( x, alpha,beta, cu mulative,A,B) | Returns the beta cumulative distribution function |
| BETA.INV | $=$ BETA.INV(probability,alpha, beta,A,B) | Returns the inverse of the cumulative distribution function for a specified beta distribution |
| BINOM.DIST | =BINOM.DIST(number_s,tria ls,probability_s,cumulative) | Returns the individual term binomial distribution probability |
| BINOM.INV | =BINOM.INV(trials,probabilit y_s,alpha) | Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value |
| CHISQ.DIST | $\begin{aligned} & =\text { CHISQ.DIST(x,deg_freedom, } \\ & \text { cumulative) } \end{aligned}$ | Returns the cumulative beta probability density function |
| CHISQ.DIST.RT | $\begin{aligned} & =\text { CHISQ.DIST.RT(x,deg_freed } \\ & \text { om) } \end{aligned}$ | Returns the one-tailed probability of the chi-squared distribution |
| CHISQ.INV | $=$ CHISQ.INV(probability, $\mathrm{deg}_{-}$ freedom) | Returns the cumulative beta probability density function |
| CHISQ.INV.RT | =CHISQ.INV.RT(probability,d eg_freedom) | Returns the inverse of the onetailed probability of the chisquared distribution |
| CHISQ.TEST | $\underset{\text { xpected_range) }}{=\text { CHISQ.TEST(actual_range,e }}$ | Returns the test for independence |

## Description

CONFIDENCE.NOR =CONFIDENCE.NORM(alpha, Returns the confidence interval for M standard_dev,size) a population mean

Returns the confidence interval for =CONFIDENCE.T(alpha,stand a population mean, using a ard_dev,size) Student's t distribution

Returns the correlation coefficient
CORREL =CORREL(array1,array2)
$=$ COVARIANCE.P(array1,arra Returns covariance, the average of
COVARIANCE.P
y2)
the products of paired deviations

Returns the sample covariance, the average of the products deviations

COVARIANCE.S

EXPON.DIST
F.DIST
F.DIST.RT
F.INV

DEVSQ
F.IN
=DEVSQ(number1,number2,...
.INV
)
=EXPON.DIST(x,lambda,cum ulative)
=F.DIST(x,deg_freedom1,deg _freedom2,cumulative)
=F.DIST.RT(x,deg_freedom1,d eg_freedom2)
=F.INV(probability,deg_freed om1,deg_freedom2)

Returns the sum of squares of deviations

## Returns the exponential

 distributionReturns the F probability distribution

Returns the F probability distribution

Returns the inverse of the F probability distribution


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| HARMEAN | $=$ HARMEAN(number1, numbe r2,...) | Returns the harmonic mean |
| HYPGEOM.DIST | =HYPGEOM.DIST(sample_s, number_sample,population_s, number_pop,cumulative) | Returns the hypergeometric distribution |
| KURT | =KURT(number1,number2,...) | Returns the kurtosis of a data set |
| LOGNORM.DIST | $\begin{gathered} \text { =LOGNORM.DIST(x,mean,sta } \\ \text { ndard_dev,cumulative) } \end{gathered}$ | Returns the cumulative lognormal distribution |
| LOGNORM.INV | =LOGNORM.INV(probability, mean,standard_dev) | Returns the inverse of the lognormal cumulative distribution |
| NEGBINOM.DIST | =NEGBINOM.DIST(number_f ,number_s,probability_s,cum ulative) | Returns the negative binomial distribution |
| NORM.DIST | =NORM.DIST(x,mean,standar d_dev,cumulative) | Returns the normal cumulative distribution |
| NORM.INV | =NORM.INV(probability,mea n,standard_dev) | Returns the inverse of the normal cumulative distribution |
| NORM.S.DIST | =NORM.S.DIST(z,cumulative) | Returns the standard normal cumulative distribution |
| PEARSON | =PEARSON(array1,array2) | Returns the Pearson product moment correlation coefficient |
| PERCENTILE.EXC | =PERCENTILE.EXC(array,k) | Returns the k-th percentile of values in a range, where k is in the range $0 . .1$, exclusive |

## Description

Returns the k-th percentile of values in a range

Returns the rank of a value in a data set as a percentage (o..1, exclusive) of the data set

PERCENTRANK.IN = PERCENTRANK.INC(array, $x$ Returns the percentage rank of a C ,significance) value in a data set

Returns the number of =PERMUT(number,number_c permutations for a given number PERMUT hosen)
of objects
=POISSON.DIST(x,mean,cum
POISSON.DIST ulative)

Returns the Poisson distribution

Returns the quartile of the data set, based on percentile values from o..1, exclusive

QUARTILE.INC = QUARTILE.INC(array,quart) Returns the quartile of a data set

Returns the square of the Pearson product moment correlation coefficient

Calculates standard deviation based on the entire population

Estimates standard deviation based on a sample

## Description

| STDEVA | $=$ STDEVA(value1,value2,...) |
| :--- | :--- |
| STDEVPA | $=$ STDEVPA(value1,value2,...) |
|  | $=$ STEYX(known_y's,known_x' |
| s) |  |

Estimates standard deviation based on a sample, including numbers, text, and logical values

Calculates standard deviation based on the entire population, including numbers, text, and logical values

Returns the standard error of the $=$ STEYX(known_y's,known_x' predicted $y$-value for each $x$ in the regression

Returns the Percentage Points (probability) for the Student tdistribution

Returns the Percentage Points (probability) for the Student tdistribution

> Returns the Student's tdistribution
T.DIST.RT =T.DIST.RT(x,deg_freedom)

Returns the $t$-value of the Student's t-distribution as a $=T . I N V($ probability,deg_freed function of the probability and the T.INV om) degrees of freedom
=T.INV. 2 T (probability,deg_fre
T.INV. 2 T
T.TEST
=T.TEST(array1,array2,tails,ty Returns the probability associated pe) with a Student's t-test

| Functions | Syntax | Description |
| :---: | :---: | :---: |
| TRIMMEAN | =TRIMMEAN(array,percent) | Returns the mean of the interior of a data set |
| VAR.P | =VAR.P(number1,number2,...) | Calculates variance based on the entire population |
| VAR.S | =VAR.S(number1,number2,...) | Estimates variance based on a sample |
| VARA | =VARA(value1,value2,...) | Estimates variance based on a sample, including numbers, text, and logical values |
| VARPA | =VARPA(value1,value2,...) | Calculates variance based on the entire population, including numbers, text, and logical values |
| WEIBULL.DIST | =WEIBULL.DIST(x,alpha,beta ,cumulative) | Returns the Weibull distribution |
| Z.TEST | =Z.TEST(array,x,sigma) | Returns the one-tailed probabilityvalue of a z -test |
| ASC | =ASC(text) | Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters |
| BETADIST | = BETADIST(x,alpha,beta,A,B) | Returns the beta cumulative distribution function |
| BETAINV | $=\begin{gathered}\text { BETAINV(probability,alpha, } \\ \text { beta,A,B) }\end{gathered}$ | Returns the inverse of the cumulative distribution function for a specified beta distribution |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| COVAR | =COVAR(array1,array2) | Returns covariance, the average of the products of paired deviations |
| CRITBINOM | =CRITBINOM(trials,probabilit y_s,alpha) | Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value |
| EXPONDIST | $=\mathrm{EXPONDIST}(\mathrm{x}, \mathrm{lambda}, \mathrm{cumu}$ lative) | Returns the exponential distribution |
| FDIST | $\begin{gathered} =\text { FDIST }(\mathrm{x}, \text { deg_freedom1,deg } \\ \text { freedom2) } \end{gathered}$ | Returns the F probability distribution |
| GAMMADIST | $\begin{gathered} =\text { GAMMADIST(x,alpha,beta, c } \\ \text { umulative) } \end{gathered}$ | Returns the gamma distribution |
| GAMMAINV | $\begin{aligned} & =\text { GAMMAINV(probability,alp } \\ & \text { ha,beta) } \end{aligned}$ | Returns the inverse of the gamma cumulative distribution |
| HYPGEOMDIST | =HYPGEOMDIST(sample_s,n umber_sample,population_s,n umber_pop) | Returns the hypergeometric distribution |
| NEGBINOMDIST | $\begin{gathered} =\text { NEGBINOMDIST(number_f, } \\ \text { number_s,probability_s) } \end{gathered}$ | Returns the negative binomial distribution |
| TTEST | $\begin{gathered} =\text { TTEST(array1,array2,tails,ty } \\ \text { pe) } \end{gathered}$ | Returns the probability associated with a Student's t-test |
| WEIBULL | $=$ WEIBULL(x,alpha,beta,cum ulative) | Calculates variance based on the entire population, including numbers, text, and logical values |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| ZTEST | =ZTEST(array,x,sigma) | Returns the one-tailed probabilityvalue of a z -test |
| BESSELI | $=\operatorname{BESSELI}(\mathrm{x}, \mathrm{n})$ | Returns the modified Bessel function $\operatorname{In}(\mathrm{x})$ |
| BESSELJ | = BESSELJ (x,n) | Returns the Bessel function $\mathrm{Jn}(\mathrm{x})$ |
| BESSELK | = BESSELK(x,n) | Returns the modified Bessel function $\mathrm{Kn}(\mathrm{x})$ |
| BESSELY | = BESSELY(x,n) | Returns the Bessel function Yn(x) |
| BIN2DEC | = BIN2DEC(number) | Converts a binary number to decimal |
| BIN2HEX | = BIN2HEX(number,places) | Converts a binary number to hexadecimal |
| BIN2OCT | $=\mathrm{BIN2OCT}$ (number,places) | Converts a binary number to octal |
| COMPLEX | =COMPLEX(real_num,i_num ,suffix) | Converts real and imaginary coefficients into a complex number |
| DEC2BIN | = DEC2BIN(number,places) | Converts a decimal number to binary |
| DEC2HEX | = DEC2HEX(number,places) | Converts a decimal number to hexadecimal |
| DEC2OCT | = DEC2OCT(number,places) | Converts a decimal number to octal |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| HEX2BIN | = HEX2BIN(number,places) | Converts a hexadecimal number to binary |
| HEX2DEC | =HEX2DEC(number) | Converts a hexadecimal number to decimal |
| HEX2OCT | = $\mathrm{HEX2OCT}$ (number,places) | Converts a hexadecimal number to octal |
| IMABS | $=$ IMABS(inumber) | Returns the absolute value (modulus) of a complex number |
| IMAGINARY | =IMAGINARY(inumber) | Returns the imaginary coefficient of a complex number |
| IMARGUMENT | = IMARGUMENT(inumber) | Returns the argument theta, an angle expressed in radians |
| IMCONJUGATE | =IMCONJUGATE(inumber) | Returns the complex conjugate of a complex number |
| IMCOS | $=\mathrm{IMCOS}$ (inumber) | Returns the cosine of a complex number |
| IMDIV | =IMDIV(inumber1,inumber2) | Returns the quotient of two complex numbers |
| IMEXP | =IMEXP(inumber) | Returns the exponential of a complex number |
| IMLN | $=$ IMLN(inumber) | Returns the natural logarithm of a complex number |


| Functions | Syntax | Description |
| :---: | :---: | :---: |
| IMLOG10 | =IMLOG10(inumber) | Returns the base-10 logarithm of a complex number |
| IMLOG2 | =IMLOG2(inumber) | Returns the base-2 logarithm of a complex number |
| IMPOWER | $=\underset{\text { ) }}{\text { IMPOWER(inumber, number }}$ | Returns a complex number raised to an integer power |
| IMPRODUCT | $\begin{aligned} & =\text { IMPRODUCT(inumber1,inu } \\ & \text { mber2,...) } \end{aligned}$ | Returns the product of complex numbers |
| IMREAL | = IMREAL(inumber) | Returns the real coefficient of a complex number |
| IMSIN | $=\mathrm{IMSIN}($ inumber $)$ | Returns the sine of a complex number |
| IMSQRT | = IMSQRT(inumber) | Returns the square root of a complex number |
| IMSUB | = IMSUB(inumber1,inumber2) | Returns the difference between two complex numbers |
| IMSUM | $\begin{gathered} =\text { IMSUM(inumber1,inumber2, } \\ \ldots . .) \end{gathered}$ | Returns the sum of complex numbers |
| OCT2BIN | = OCT2BIN(number,places) | Converts an octal number to binary |
| OCT2DEC | =OCT2DEC(number) | Converts an octal number to decimal |

## Description

Converts an octal number to hexadecimal
=ACCRINT(issue,first_interes
t ,settlement,rate,par,frequency Returns the accrued interest for a
=OCT2HEX(number,places)

ACCRINT
OCT2HEX

ACCRINTM

COUPDAYBS

COUPDAYS

COUPNCD

COUPNUM

COUPPCD

CUMIPMT
,basis,calc_method) security that pays periodic interest

Returns the accrued interest for a =ACCRINTM(issue,settlement ,rate,par,basis)
security that pays interest at maturity

Returns the number of days from =COUPDAYBS(settlement,mat the beginning of the coupon period urity,frequency,basis) to the settlement date

Returns the number of days in the $=$ COUPDAYS(settlement, matu coupon period that contains the rity,frequency,basis) settlement date

Returns the number of days from
=COUPDAYSNC(settlement,m aturity,frequency,basis)
the settlement date to the next coupon date
$=$ COUPNCD (settlement,matur Returns the next coupon date after ity,frequency,basis) the settlement date

Returns the number of coupons payable between the settlement date and maturity date
$=$ COUPPCD (settlement,maturi Returns the previous coupon date ty,frequency,basis) before the settlement date
=CUMIPMT(rate,nper,pv,start Returns the cumulative interest _period,end_period,type) paid between two periods

Functions CUMPRINC

DISC

DURATION
FVSCHEDULE

INTRATE

ISPMT $\quad=I S P M T($ rate,per,nper,pv)
=MDURATION(settlement,ma turity,coupon,yld,frequency,ba sis)
=INTRATE(settlement,maturit

## Description

=CUMPRINC(rate,nper,pv,sta Returns the cumulative principal rt_period,end_period,type) paid on a loan between two periods

| $=$ DURATION(settlement, matu |  |
| :---: | :---: |
| rity,coupon,yld,frequency,basi | $\begin{array}{c}\text { Returns the annual duration of a } \\ \text { security with periodic interest } \\ \text { payments }\end{array}$ |

Returns the future value of an =FVSCHEDULE(principal,sch initial principal after applying a edule)
y, investment, redemption, basis Returns the interest rate for a fully invested security

Calculates the interest paid during a specific period of an investment

Returns the Macauley modified duration for a security with an assumed par value of $\$ 100$
$=$ ODDFPRICE(settlement,mat Returns the price per $\$ 100$ face urity, issue,first_coupon,rate, yl value of a security with an odd first d,redemption,frequency,basis)
period
=ODDFYIELD(settlement,mat urity,issue,first_coupon,rate,p Returns the yield of a security with
ODDFYIELD r,redemption,frequency,basis) an odd first period

Functions

ODDLPRICE

ODDLYIELD

PPMT

PRICE

PRICEDISC

PRICEMAT

RECEIVED

TBILLEQ


## Description

$=$ ODDLPRICE(settlement,mat Returns the price per $\$ 100$ face urity,last_interest,rate,yld,red value of a security with an odd last emption,frequency,basis)
period
=ODDLYIELD(settlement,mat
urity,last_interest,rate,pr,rede Returns the yield of a security with mption,frequency,basis) an odd last period

Returns the periodic payment for an annuity

Returns the payment on the
=PPMT(rate,per,nper,pv,fv,typ e)
$=$ PRICE(settlement, maturity,r ate,yld,redemption,frequency, basis)
=PRICEDISC(settlement,matu rity,discount,redemption,basis )
=PRICEMAT(settlement,matu rity,issue,rate,yld,basis)
=RECEIVED(settlement,matu rity,investment,discount,basis)
=TBILLEQ(settlement,maturit Returns the bond-equivalent yield y,discount) for a Treasury bill

## Description

$=$ TBILLPRICE(settlement, mat Returns the price per $\$ 100$ face
urity,discount) value for a Treasury bill
=TBILLYIELD(settlement, mat Returns the yield for a Treasury urity,pr)
bill
TBILLYIELD
$=$ TBILLYIELD(settlement,mat
urity,pr)

Returns the depreciation of an
TBILLPRICE

| VDB | =VDB(cost,salvage,life,start_p eriod,end_period,factor,no_s witch) | Returns the depreciation of an asset for a specified or partial period by using a declining balance method |
| :---: | :---: | :---: |
| XIRR | =XIRR(values,dates,guess) | Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic |
| XNPV | $=\mathrm{XNPV}$ (rate, values,dates) | Returns the net present value for a schedule of cash flows that is not necessarily periodic |
| YIELDDISC | =YIELDDISC(settlement,matu rity,pr,redemption,basis) | Returns the annual yield for a discounted security; for example, a Treasury bill |
| YIELDMAT | =YIELDMAT(settlement,matu rity,issue,rate,pr,basis) | Returns the annual yield of a security that pays interest at maturity |
| ACOS | = ACOS(number) | Returns the arccosine of a number |
| ACOSH | = ACOSH(number) | Returns the inverse hyperbolic cosine of a number |
| ASIN | = ASIN(number) | Returns the arcsine of a number |

Functions

ASINH

ATAN2 $=A T A N 2\left(x \_n u m, y \_n u m\right)$

ATANH

DEGREES

MDETERM

MINVERSE

$$
\text { MMULT } \quad=\text { MMULT(array1,array2) }
$$

RADIANS = RADIANS(angle)

SQRTPI

BAHTTEXT = BAHTTEXT(number)

Returns the inverse hyperbolic sine of a number

Returns the arctangent of a number

Returns the arctangent from x and y-coordinates

Returns the inverse hyperbolic tangent of a number

Converts radians to degrees

Returns the matrix determinant of an array

Returns the matrix inverse of an array

Returns the matrix product of two arrays

Converts degrees to radians

Converts an arabic numeral to roman, as text

Returns the square root of (number * pi)

Converts a number to text, using the $\beta$ (baht) currency format

## Description

Returns a key performance indicator (KPI) name, property, and measure, and displays the name and property in the cell. A KPI is a quantifiable measurement, such as monthly gross profit or =CUBEKPIMEMBER(connecti quarterly employee turnover, used on,kpi_name,kpi_property,ca to monitor an organization's
ption)
CUBEKPIMEMBER
=CUBEMEMBERPROPERTY(
CUBEMEMBERPR connection,member_expressio OPERTY CUBEMEMBER member_expression,caption)

Returns a member or tuple in a cube hierarchy. Use to validate =CUBEMEMBER(connection, that the member or tuple exists in

Returns the value of a member property in the cube. Use to validate that a member name exists within the cube and to return the specified property for this member.

Returns the nth, or ranked, member in a set. Use to return one =CUBERANKEDMEMBER(co or more elements in a set, such as

CUBERANKEDME nnection,set_expression,rank, MBER caption) CUBERARED the cube.
-

CUBESET =CUBESET(connection,set_ex server, which creates the set, and pression,caption,sort_order,so then returns that set to Microsoft CUBESET rt_by) Office Excel.

Returns the number of items in a set.

