

+ Spreadsheet Page Toolbar Menus

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Click the File Button on the Spreadsheet Toolbar to get the file Menu

New Creates a new spreadsheet.

Open Opens an existing spreadsheet.

Save Saves the current spreadsheet.

Save As Saves the current spreadsheet with a different name.

- Print** Print the spreadsheet
- Print Setup** Brings up the Print Setup dialog box.
- Print Area** Define selected area of the spreadsheet to be printed.
- Print Titles** Choose the rows and columns printed on each new page.

[Page Setup](#)

The Page Setup Command allows you to specify a per-page header and/or footer and margins. If you don't want a header or footer, leave the header or footer blank. You can specify any text in the header and footer. You can also specify the following format codes:

Format Code Description

- &R** Right-aligns the characters.
- &C** Centers the characters.
- &L** Left-aligns the characters.
- &F** Prints worksheet name.
- &T** Prints current time.
- &D** Prints current date.
- &P** Prints page number.
- &P+number** Prints page number plus number.
- &P-number** Prints page number minus number.
- &&** Prints an ampersand.
- &N** Prints total number of pages in the document.

Text and codes, by default, are centered unless &L or &R is specified.

Font codes must appear before other codes and text or they are ignored. The alignment codes restart each section; new font codes can be specified after an alignment code. Here is a list of the following font codes:

Format Code Description

- &B** Uses a bold font.
- &I** Uses an italic font.
- &U** Underlines the header.
- &S** Strikeout the header.
- &O** Ignored.
- &H** Ignored.
- &"fontname"** Uses the specified font.
- &nn** Uses the specified font sized - must be a two digit number.

For the Spreadsheet..

Click the Edit button on the spreadsheet toolbar to get the Edit Menu

Cut Cuts current spreadsheet selection to the clipboard.

Copy Copies current spreadsheet selection to the clipboard.

Paste Pastes contents of the clipboard to the current spreadsheet selection.

Clear The Clear dialog box is displayed, allowing you to object the data from the current selection. You can only clear formats, only values, or both.

Insert Inserts cells at the location of the current selection. To make room for new cells, cells adjacent to the insertion are shifted.

Delete Deletes the current selection. Cells adjacent to the deleted cells are shifted to fill the space left by the vacated cells.

Goto The Goto dialog box is displayed, allowing you to specify a cell to display in the spreadsheet window. The specified cell is made the active cell.

Sort The Sort dialog box is displayed, allowing you to set the sorting method and sort keys for data sorting.

Copy Right In the leftmost cell, data of the selected range is copied right to fill the range.

Copy Down In the top cell, data of the selected range is copied down to fill the range.

Recalc The spreadsheet is recalculated.

Calculation The Calculation dialog box is displayed, allowing you to enable and disable automatic recalculation and to specify iteration values for calculating circular references.

Define Name The Define Name dialog box is displayed, allowing you to add and delete names.

To make a graph from the spreadsheet ..

- Select the area of the spreadsheet you want to graph..(including any text you might want as row and column labels)
- Click Graph button from the spreadsheet toolbar - if you can't see this, click the vertical "Spreadsheet" label on the right.
- Choose the type of graph you want from the menu and it will be assembled on the graph page

Things to note..

- Some graphs need more than one column of data in the spreadsheet to make just one series of points on a graph. For example, a bar graph needs only one data column per series of points but an XY graph needs two spreadsheet columns for every series of points.
- You can change the graph type very easily once the graph is made by clicking on the vertical "graph" label for the graph menu..
- When the data in the spreadsheet is updated, the graph itself is updated. If you graph an equation in the meantime, that link is broken.
- You can copy the graph from the graph page and stick it directly onto the spreadsheet using the graph's menu to Copy and choosing Paste from the Spreadsheet page Edit menu. The graph stuck to the spreadsheet will not be updated with the original on the Graph page, but it will be saved and printed with the spreadsheet.

[Click here for the more detailed Chart Help file](#)

See Also ..

[Graphing Equations](#)

Click the Format Button on the Spreadsheet Toolbar to get the Format Menu.

The Format menu includes these commands to format the spreadsheet...

Alignment Sets how text and numbers are aligned within cells.

Font The Font dialog box is displayed, allowing you to specify the font, font style, and color of data in the selected range.

Border The Border dialog box is displayed, allowing you to specify the placement of borders in the selected range. You can also specify the border line style and color. The check box in the Border dialog box are three-state check boxes, allowing "as is" selections to be made.

Cell Protection The Cell Protection dialog box is displayed, allowing you to specify whether the cells in the selected range are locked and hidden.

Enable Protection Enables protection for protected cells in the worksheet.

Pattern The Pattern dialog box is displayed, allowing you to specify the fill pattern and foreground and background colors for the selected range.

General Formats data in the selected range using the General format.

Currency (0) Formats data in the selected range using the Currency format and a decimal precision of 0.

Currency (2) Formats data in the selected range using the Currency format and a decimal precision of 2.

Fixed Formats data in the selected range using the Fixed format.

Percent Formats data in the selected range using the Percent format. Numbers with this format

are displayed as percentages with a trailing percent sign (%).

Fraction Formats data in the selected range using the Fraction format. Numbers with this format are displayed as fractions.

Scientific Formats data in the selected range using the Scientific format.

M/D/YY Formats data in the selected range using the M/D/YY format. Numbers with this format are displayed as dates.

H:MM AM/PM Formats data in the selected range using the H:MM AM/PM time format. Numbers with this format are displayed as times.

Custom Number The Custom Number dialog box is displayed, allowing you to define custom number formats for data in the selected range.

Color Palette The Color Palette dialog box is displayed, allowing you to edit colors in the color palette, specify a default color, and use the default color palette.

Column Width The Column Width dialog box is displayed.

Row Height The Row Height dialog box is displayed.

Turn Selection into Matrix This command turns the selected area into a separate floating matrix window. Once you have made a matrix window, you can do all sorts of matrix math with it and other matrices.

Close all Matrices This function closes any open matrix windows. It is a fast way to get rid of them once you are finished and want to do something else in BlackBox.

[Using Matrices](#)

Check box tool Draws check box objects.

List tool Draws a list box.

Oval tool Draws circles and ovals.

Arc tool Draws arcs.

Freehand tool Draws lines.

Line tool Draws straight lines.

Rectangle tool Draws rectangles and squares.

Freehand detail tool Toggles editing points on objects drawn using the freehand tool.

Pattern For the selected objects, Pattern sets the fill pattern and colors.

Line Style For the selected line object or the border surrounding the selected arcs, ovals, polygons, and rectangles, Line Style sets the line style.

Options The Object Option dialog box is displayed allowing you to set the input/output value cell for selected check boxes and list boxes, the text displayed by check boxes, and the list of items contained by list boxes. Separate items in list boxes with a semicolon.

Bring To Front In the spreadsheet, Bring To Front, places the selected objects in front of other objects.

Send To Back In the spreadsheet, Send To Back, places the selected objects behind other objects.

Allow Sets the features you will allow in the spreadsheet.

Show Sets the features you want visible in the spreadsheet. For example, you can turn off the gridlines to make a table look neater.

Don't forget to put an "=" sign before using any functions in the spreadsheet.

Also Note: These are sometimes different to the functions used in the BlackBox Calculator. These functions are featured as buttons in the Functions Keypad that pops up when you click in the Equation Box.

ABS

INT

LN

LOG

LOG10

SQRT

EXP

ROUND

TRUNC

FLOOR

CEILING

ODD

EVEN

TYPE

N

SIGN

VALUE

SIN

COS

TAN

ASIN

ACOS

ATAN

ATAN2

SINH

COSH

TANH

ASINH

ACOSH

ATANH

PRODUCT

For the Spreadsheet..

PMT

PPMT

PV

RATE

FV

IPMT

NPER

NPV

IRR

MIRR

DB

DDB

SLN

SYD

VDB

SUM
COUNT
COUNTA
AVERAGE
MIN
MAX
FACT
STDEV
STDEVP
VARP
SUMSQ
VAR

For the Spreadsheet..

NOW

TODAY

WEEKDAY

MONTH

DAY

DATEVALUE

YEAR

DATE

VLOOKUP
HLOOKUP
MATCH
INDEX
LOOKUP
CHOOSE
OFFSET

LEFT
MID
RIGHT
&
LEN
LOWER
UPPER
SUBSTITUTE
FIND
SEARCH
REPLACE
PROPER
TRIM
CLEAN
CHAR
CODE
DOLLAR
EXACT
REPT
FIXED
I
TEXT

IF
INDIRECT
ERROR.TYPE
MOD
ROW
ROWS
COLUMN
COLUMNS
ADDRESS
AND
OR
NOT
PI
RAND
TRUE
FALSE
NA

Using Keyboard Commands

The tables in this section list the keyboard commands you can use when working with the BlackBox spreadsheet. The following table lists action keys that allow you to enter and edit data, move the active cell within a selected range, and recalculate the spreadsheet

Key Description

ENTER When in edit mode, accepts the current entry. When a range is selected, accepts the current entry and moves active cell vertically to next cell in selection.

SHIFT + ENTER When in edit mode, accepts the current entry. When a range is selected, accepts the current entry and moves active cell vertically to previous cell in selection.

TAB When in edit mode, accepts the current entry. When a range is selected, accepts the current entry and moves active cell horizontally to next cell in selection.

SHIFT +TAB When in edit mode, accepts the current entry. When a range is selected, accepts the current entry and moves active cell horizontally to previous cell selection.

F2 Enters edit mode. While in editing mode, F2 displays the Cell Text dialog box, in which you can enter multi-line data entries.

F9 Recalculates worksheet.

DEL Clears current selection or deletes the current record depending on the setting of the AllowDelete property.

Escape Cancels current data entry or editing operation. If you are not editing and are currently in a database row, refreshes current database row.

The following table lists the movement keys that allow you to move the active cell within a worksheet and display different sections of the worksheet.

Key Description

Up Arrow Moves active cell up one row.

Down Arrow Moves active cell down one row.

Left Arrow Moves active cell left one column.

Right Arrow Moves active cell right one column.

CTRL Up/Down/Left/Right Moves to the next range of cells containing data. If there is no additional data in the direction in which you are moving, moves to the edge of the worksheet.

Page Up Moves up one screen.

Page Down Moves down one screen.

CTRL Page Up Moves left one screen.

CTRL Page Down Moves right one screen.

Home Goes to first column of current row.

End Goes to last column of current row that contains data.

CTRL Home Goes to row 1 column 1.

CTRL End Goes to last row and column that contains data.

The following table lists the keys that modify the action of the movement keys.

Key	Description
-----	-------------

Scroll lock	Causes the worksheet window to scroll without changing current selection with all movement keys except Home, End, CTRL Home, and CTRL End.
--------------------	--

SHIFT plus any movement key	Extends the current selection.
------------------------------------	--------------------------------

The following table lists the mouse actions you can perform with the spreadsheet.

Action	Description
--------	-------------

Left Click	Moves the active cell to the pointer position.
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Right Click	Does nothing.
--------------------	---------------

Left Click in Row or Column Headings	Selects entire row or column.
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Left Click in Top Left Corner	Selects entire spreadsheet.
--------------------------------------	-----------------------------

Left Double Click in Top Left Corner, Row Headings, or Column Headings	Displays a dialog box that allows you to enter a label for the top left corner or the column or row heading that was double clicked.
---	--

Left Double Click	invokes in-cell editing.
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Left Click and Drag	Selects a range. If other ranges are selected, the previously selected ranges are unselected.
----------------------------	---

CTRL + Left Click and Drag	Selects a range. If other ranges are selected they remain selected.
-----------------------------------	---

SHIFT + Left Click and Drag	Extends the current selection.
------------------------------------	--------------------------------

CTRL + SHIFT Click on Row Headings, Column Headings, or Top Left Corner	Selects the row headings, column headings, or top left corner of the spreadsheet.
--	---

Drag a Selection's Copy Handle	Copies the selection into the newly selected area.
---------------------------------------	--

Drag a Selection's Border	Moves the selection to a new location.
----------------------------------	--

ALT + Click and Drag an Object or Objects Selection Handles	Repositions or resizes an object and aligns object sides with the cell grid.
--	--

A
B
C
D
E
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#

&

A

ABS

ACOS

ACOSH

ADDRESS

And

AND

AND 1

ASIN

ASINH

ATAN

ATAN2

ATANH

AVERAGE

B

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ISNA

ISNONTEXT

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NPV

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SEARCH

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SQRT

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TRIM

TRUE

TRUNC

TYPE

U

UPPER

V

VALUE

VAR

VARP

VDB

Viewing Options

VLOOKUP

W

WEEKDAY

Y

YEAR

Returns the absolute value of a number.

Examples

ABS(-1) returns 1

ABS(1) returns 1

See Also

[SIGN](#)

Returns the arc cosine of a number.

Number is the cosine of the angle ranging from 1 to -1. The resulting angle is returned in radians from 0 to pi. Multiply the radians by 180/PI() to convert the resulting radians to degrees.

Examples

ACOS(.5) returns 1.05

ACOS(-0.5)*180/PI() returns 120 degrees

See Also

[COS](#)
[PI](#)

Returns the inverse hyperbolic cosine of number.

Number is any number that is equal to or greater than 1.

Examples

ACOSH(3) returns 1.76

ACOSH(1.2) returns .62

See Also

[ASINH](#)

[ATANH](#)

[COSH](#)

ADDRESS(row, column, ref_type [,a1] [,sheet])

Creates a cell address as text.

Row is the row number for a cell address.

Column is the column number for an address.

Ref_type is the cell reference type. The following lists the values for this argument:

Reference type	Argument
Absolute	1
Absolute row, relative column	2
Relative row, absolute column	3
Relative	4

a1 is the reference format. This argument must be TRUE() to represent an A1 reference format.

Sheet_text is the name of an external spreadsheet. If omitted, then there is no sheet name used.

Examples

ADDRESS(5, 6, 1) returns "\$F\$5"

ADDRESS(2,3) returns "\$C\$2"

See Also

[COLUMN](#)

[OFFSET](#)

[ROW](#)

Combine two strings.

Examples

37&b1 -> if cell b1 is 5, function returns 375

"Black"& b1 -> if cell b1 is "Box", function returns BlackBox

Returns the logical value True if all arguments are true. Returns False if any argument is false.

Logical_list is a list of conditions separated by commas. Logical_list can have 1 to 30 conditions in the list. The list can contain logical values or a reference to a range containing logical values. Text and empty cells are ignored.

#VALUE! is returned if there are no logical values in the list.

Examples

AND(TRUE(), FALSE()) returns False

AND(TRUE(), TRUE()) returns True

See Also

[IF](#)
[NOT](#)
[OR](#)

Returns the arcsine of a number in radians (ranging from $-\pi/2$ to $\pi/2$).

Number is the sine of the resulting angle (ranging from -1 to 1). Multiply the radians by $180/\pi$ to convert the resulting radians to degrees.

Examples

ASIN(-1) returns -1.57

ASIN(-0.5) returns -0.52 ($\pi/6$ radians)

See Also

[ASINH](#)

[PI](#)

[SIN](#)

Returns the inverse hyperbolic sine of a number.

Number is any number.

Examples

ASINH(-4) returns -2.09

ASINH(10) returns 2.998223

See Also

[ASIN](#)

[ATANH](#)

[SINH](#)

Returns the arc tangent of number.

Number is the tangent of the angle. The resulting angle is returned in radians from $-\pi/2$ to $\pi/2$. Multiply the radians by $180/\text{PI}()$ to convert the resulting radians to degrees.

Examples

ATAN(3.5) returns 1.29

ATAN(1) returns 0.785 ($\pi/4$ radians)

See Also

[ATANH](#)

[PI](#)

[TAN](#)

Returns the arc tangent of the x and y coordinates.

The angle is returned in radians, ranging from $-\pi$ to π , excluding $-\pi$.

Examples

ATAN2(-1, .1) returns 3.04

ATAN2(3, 6) returns 1.11

See Also

[ATAN](#)

[ATANH](#)

[PI](#)

[TAN](#)

Returns the inverse hyperbolic tangent of a number.

Number must range between -1 and 1.

Examples

ATANH(0.50) returns 0.549306

ATANH(.5) returns .55

See Also

[ACOS](#)

[ASINH](#)

[TANH](#)

Returns the average of the supplied numbers. The result of AVERAGE is also known as the arithmetic mean.

A list of numbers separated by commas is a number_list. 30 numbers can be included in the list, and the list can contain numbers or a reference to a range that contains numbers. Logical expressions, text, or empty cells in a referenced range are ignored. All numeric values (including 0) are used.

Example

AVERAGE(5, 6, 8, 14) returns 8.25

See Also

MIN
MAX

Rounds number to the nearest multiple of significance.

Number is the value to which you round.

Significance is the multiple to which you round.

Examples

CEILING(1.23459, .05) returns 1.25

CEILING(-2.5, -2) returns -4

See Also

[EVEN](#)

[FLOOR](#)

[INT](#)

[ODD](#)

[ROUND](#)

[TRUNC](#)

Returns a character that corresponds to the ANSI code.

The character and associated numeric code are defined by Windows in the ANSI character set.

Examples

CHAR(70) returns F

CHAR(65) returns A

See Also

[CODE](#)

Based on the index number supplied, returns a value from a list of numbers.

Index is a number that refers to an item in item_list.

Index can be a cell reference. Index can be a formula that returns any value from 1 to 29.

#VALUE! is returned if index is less than 1 or greater than the number of items in item_list.

Index is truncated to an integer if index is a fractional number.

Item_list is a list of formulas, numbers, or text separated by commas. This argument can also be a range reference. 29 items can be specified in the list.

Examples

CHOOSE(-2,4,6,7) returns #VALUE!

CHOOSE(2, "red", "white", "blue") returns "white"

See Also

[INDEX](#)

Removes all non printable characters from the text.

Example

CLEAN("Payments " & CHAR(8) & "Due") returns Payments Due because the character returned by CHAR(8) is non printable.

See Also

CHAR
TRIM

Returns a numeric code that represents the first character in text.

Text is any string.

The numeric code and associated string are defined in your computer's character set. The character set used by Windows is the ANSI character set.

Examples

CODE("A") returns 65

CODE("b") returns 98

See Also

CHAR

Returns the column number of reference.

Reference is a reference to a cell. Reference cannot be a reference to multiple areas. Omitting the argument returns the number of the column in which COLUMN is replaced.

Examples

COLUMN(B3) returns 2

COLUMN(A3) returns 1

See Also

COLUMNS
ROW

Returns the number of columns in a range reference.

Range is a reference to a range of cells.

Examples

COLUMNS(A1:D5) returns 4

COLUMNS(A1:C4) returns 3

See Also

[COLUMN](#)
[ROWS](#)

Returns the cosine of a given angle.

Number is the angle in radians. If the angle is in degrees, multiply the angle by $\text{PI}()/180$, to convert the angle to radians.

Examples

`COS(5)` returns .28

`COS(PI()/2)` returns 0

See Also

[ACOS](#)

[ASINH](#)

[ATANH](#)

[PI](#)

Returns the hyperbolic cosine of number.

Number is any number.

Examples

COSH(2.10) returns 4.14

COSH(4) returns 27.30823

See Also

[ASINH](#)

[ATANH](#)

[COS](#)

Returns the number of values in the supplied list.

A list of values is a value_list. 30 values may be contained in the list.

COUNT only numerates numbers or numerical values. If you supply a range, only numbers and numerical values in the range are counted. Empty cells, logical values, error values, and text in the range are ignored.

Example

COUNT(5, 6, "02") returns 2

See Also

AVERAGE
COUNTA
SUM

Returns the number of non-blank values in the supplied list.

A list of expressions is an expression_list. 30 expressions can be included in the list.

COUNTA returns the number of cells that contain data in a range. Null values (" ") are counted, but references to empty cells are ignored.

Example

COUNTA(32, 45, "Earnings", "") returns 4

See Also

AVERAGE
COUNT
PRODUCT
SUM

Returns the serial number corresponding to year, month, and day.

Year is a number from 1900 to 2078. If year is between 1920 to 2019, you can specify two digits to represent the year. To specify a year before 1920 or after 2019, specify all four digits of the year.

Month is a number representing the month. If the number supplied is greater than 12, the number is added to the first month of the specified year.

Day is a number representing the day of the month. If the number specified for day exceeds the number of days in that month, the number is then added to the first day of the specified month.

Examples

DATE(99, 3, 6) returns 36225

DATE(94, 6, 21) returns 34506

See Also

DAY

MONTH

NOW

TIMEVALUE

TODAY

YEAR

Returns the serial number of a date supplied as a text string.

In text format, text is a date, between January 1, 1900 and December 31, 2078. By omitting the year, then the current year is used.

Examples

DATEVALUE("12/25/95") returns 35058

DATEVALUE("8/22/55") returns 20323

See Also

NOW

TIMEVALUE

TODAY

Returns the day of the month corresponding to the date represented by the serial_number.

Serial_number is the date as a text or as a serial number.

Examples

DAY("8/23/75") returns 23

DAY("5-Feb") returns 5

See Also

NOW

HOUR

MINUTE

MONTH

SECOND

TODAY

WEEKDAY

YEAR

Using the fixed-declining balance method, DB returns the real depreciation of an asset for a specific period of time.

The initial cost of the asset is cost.

The salvage value of the asset is salvage.

The number of periods in the useful life of the asset is life.

The period for which to calculate the depreciation is period. The time units used to determine period and life must match.

The number of months in the first year of the item's life is months. Omitting this argument assumes there are 12 months in the first year.

Example

DB(1000000, 100000, 6, 1, 7) returns \$186,083

DB(10000, 1000, 7, 3) returns 1451.52

See Also

DDB

SLN

SYD

VDB

Returns the depreciation of an asset for a specific period of time using the double declining balance method or a declining balance factor that you supply.

The initial cost of the asset is cost.

The salvage value of the asset is salvage.

The number of periods in the useful life of the asset is life.

The period for which to calculate the depreciation is period. The time units used to determine period and life must match.

The rate at which the balance declines is factor. Omitting this argument assumes a default factor of 2, the double-declining balance factor.

All arguments for this function must be positive.

Example

DDB(10000, 1000, 7, 3) returns 1457.73

See Also

DB
SLN
SYD
VDB

Returns the specified number as text, using currency format.

Decimals are the number of digits to the right of the decimal point. If negative, then number is rounded to the left of the decimal point. Omitting this argument, number is assumed to be 2.

Examples

DOLLAR(1674.321) returns "\$1674.32"

DOLLAR(32.987) returns "\$32.99"

See Also

FIXED
TEXT
VALUE

BlackBox displays an error value in a cell when it cannot properly calculate the formula for that cell.

If a formula includes a reference to a cell that contains an error value, that formula also produces an error value (unless you are using the special spreadsheet functions ISERR, ISERROR, or ISNA, which look for error values). You may have to trace the references back through a series of cells to discover the source of the error.

Error value Meaning

#DIV/0! The formula is trying to divide by zero.

#N/A! No value is available. Usually, you enter this value directly into spreadsheet cells that will eventually contain data that is not yet available. Formula referring to those cells will return #N/A! instead of calculating a value.

#NAME? BlackBox does not recognize a name used in the formula.

#NULL! You specified an intersection of two areas that do not intersect.

#NUM! There is a problem with a number.

#REF! The formula refers to a cell that is not valid.

#VALUE! An argument or operand is of the wrong type.

Returns a number corresponding to an error.

Error_ref is a cell reference.

The following lists the error text and associated error numbers returned by the function Error.type:

Error text	Number
#NULL!	1
#DIV/0!	2
#VALUE!	3
#REF!	4
#NAME?	5
#NUM!	6
#N/A	7
Other	#N/A

Example

ERROR.TYPE(A1) returns 2 if the formula in cell A1 attempts to divide by zero.

See Also

[ISERR](#)
[ISERROR](#)

Rounds number up to the nearest even integer.

Examples

EVEN(2.5) returns 4

EVEN(3) returns 4

See Also

[CEILING](#)

[FLOOR](#)

[INT](#)

[ODD](#)

[ROUND](#)

[TRUNC](#)

Compares text1 and text 2 for identical, case-sensitive matches. True is returned if text1 and text2 are identical; False is returned if they are not.

Text1 is any text.

Text2 is any text.

Examples

EXACT("baby", "baby") returns True
EXACT("Baby", "baby") returns False

See Also

LEN
SEARCH

Returns e raised to the power of specified number. The base of the natural logarithm is the constant e, 2.71828182845904.

Examples

EXP(3) returns 20.09

EXP(1) returns 2.71828

See Also

LN

LOG

Returns the factorial of a specified number.

Any non-negative integer is number. If you supply a real number, FACT truncates the number to an integer before calculation.

Examples

FACT(2.5) returns 2
FACT(1) returns 1
FACT(5) returns 120

See Also

[PRODUCT](#)

Returns the logical value False. You must include the parentheses when using this function.

See Also

[TRUE](#)

Searches for a text string within another text string and returns the character position at which the search string first occurs.

The text to find is search_text. Search_text ("") FIND matches the first character in text.

The text to be searched is text.

Start_at_num is the character position in text where the search begins (which is character number 1, if omitted then the default starting position is character number 1).

FIND cannot use wildcard characters in the search_text.

Examples

FIND("o", "New York") returns 6

FIND("N", "New York") returns 1

See Also

EXACT

LEN

MID

SEARCH

Rounds a number to decimals. Formats the number in decimal format, and returns the result as text.

Number is any number.

Decimals are the number of digits that appear to the right of the decimal place. If decimals are negative, then number is rounded to the left of the decimal point. You can specify a decimal as great as 127 digits. If decimals are omitted, it is assumed to be 2.

No_commas determines if commas are used in the result. Use 1 to exclude commas in the result. If the argument is omitted, then commas are included (e.g., 1,000.00).

Examples

FIXED(4000.5, 3) returns "4,000.500"

FIXED(55.222) returns "55.22"

See Also

DOLLAR
ROUND
TEXT
VALUE

Rounds number down to nearest multiple of specified significance.

Number is the value to which you round.

Significance is the multiple to which you round.

Examples

FLOOR(1.5, 0.1) returns 1.5

FLOOR(1.23459, 0.5) returns 1.2

See Also

[CEILING](#)

[EVEN](#)

[INT](#)

[ODD](#)

[ROUND](#)

[TRUNC](#)

Returns the future value of an annuity based on regular payments and a fixed interest rate.

The fixed interest rate is interest.

The number of payments in an annuity is nper.

The fixed payment made each period is payment.

The present value, or the lump sum amount, the annuity is currently worth is pv. Omitting this argument, a present value of 0 is assumed.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Units used for interest must match those used for nper. For example, if the annuity has an 8% annual interest rate over a period of 5 years, specify 8%/12 for interest and 5*12 for nper.

Cash paid out, is shown as a negative number. Cash received, is shown as a positive number.

Examples

FV(5%, 8, -500) returns 4,774.55

FV(1%, 12, -1000) returns 12682.50

See Also

IPMT

NPER

PMT

PPMT

PV

RATE

≡

A
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C
D
E
F
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J
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S

string

Searches the top row of a table for a value. Then returns the contents of a cell in that table that corresponds to the location of the search value.

Search_item is a text string, value, or reference to a cell containing a value that is matched against data in the top row of search_range.

Search_range is the reference of the range to be searched. Cells in the first row of search_range can contain text, numbers, or logical values. Contents of the first row must be in ascending order.

Text searches are not case-sensitive.

Row_index is the row in search_range from which returned is the matching value.

Row_index can be a number from 1 to the number of rows in the search range.

#VALUE! is returned if row_index is less than 1.

#REF! is returned when row_index is greater than the number of rows in the table.

HLOOKUP compares the information in the top row of search_range to the supplied search_item.

Row_index is returned when a match is found and information is located in the same column.

The largest value that is less than search_item is used when search_item cannot be found in the top row of search_range.

#REF! is returned when search_item is less than the smallest value in the first row of the search range.

See Also

INDEX

LOOKUP

MATCH

VLOOKUP

Returns the hour corresponding to serial_number.

Serial_number is the time as a serial number. The decimal portion of the number represents time as a fraction of the day.

An integer ranging from 0 (12:00 AM) to 23 (11:00 PM) is the result.

Examples

HOUR(34259.4) returns 9

HOUR(0.7) returns 16

See Also

DAY

MINUTE

MONTH

NOW

SECOND

WEEKDAY

YEAR

Tests the condition and returns the specified value.

Condition is any logical expression.

True_value is the value to be returned if condition evaluates to True.

False_value is the value to be returned if condition evaluated to False.

Examples

IF(TRUE,1,2) returns 1

IF(FALSE,1,2) returns 2

See Also

AND

FALSE

NOT

OR

TRUE

Returns the contents of a cell from a specified range.

Reference is a reference to one or more ranges.

If reference supplies more than one range, you must separate each reference with a comma and enclose reference in parentheses.

If each range in reference contains just one row or column, you can omit the row or column argument.

Row is the row number in reference from which to return data.

Column is the column number in reference from which to return data.

Range_number specifies the range from which data is returned if reference is containing more than one range.

#REF! is returned if row, column, and range_number do not point to a cell within reference.

INDEX returns the range in reference specified by range_number if row and column are omitted.

See Also

[CHOOSE](#)
[HLOOKUP](#)
[LOOKUP](#)
[MATCH](#)
[VLOOKUP](#)

Returns the contents of the cell referenced by the ref_text.

Ref_text is a reference to a cell that references a third cell. If ref_text is not a valid cell reference, then #REF! is returned.

A1 is the reference format. TRUE() must be represented for an A1 reference format.

Example

INDIRECT (C1) returns the contents of the cell that c1 references If C1 contains "D1", then INDIRECT returns the contents of D1.

See Also

[OFFSET](#)

Rounds the supplied number down to the nearest integer.

Examples

INT(1.99) returns 1
INT(-1.99) returns -2

See Also

CEILING
FLOOR
MOD
ROUND
TRUNC

Returns the interest payment of an annuity for a given period, based on regular payment and a fixed periodic interest rate.

The fixed periodic interest rate is interest.

The period for which to return the interest payment is per. This number must be between 1 and nper.

The number of payments is nper.

The present value, or the lump sum amount the annuity is currently worth is pv.

The future value, or the value after all payment are made is fv. Omitting this argument, the future value is assumed to be 0.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Units used for interest must match those used for nper. For example, if the annuity has an 8% annual interest rate over a period of 5 years, specify 8%/12 for interest and 5*12 for nper.

Cash paid out, is shown as a negative number. Cash received, is shown as a positive number.

Examples

IPMT(8%/12, 2, 48, 18000) returns -117.87

IPMT(8%/12, 2, 48, 18000, 0, 1) returns -117.09

See Also

FV
PMT
PPMT
RATE

Returns internal rate of return for a series of periodic cash flows.

A reference to a range that contains values for which to calculate the internal rate of return is cash_flow. The values must contain at least one positive and one negative value.

IRR use the order in which the values appear to determine the order of the cash flow, during calculation.

Empty cells in the range are ignored. Text and logical values also are ignored.

The estimate of the internal rate of return is guess. If no argument is supplied, a rate of return of 10 percent is assumed.

The interest rate received for an investment consisting of payments and investments is the internal rate of return.

IRR is calculated iteratively, cycling through the calculation until the result is accurate to .00001 percent.

#NUM! is returned if the result cannot be found after 20 iterations. Supply a different value for guess, when this occurs.

See Also

MIRR

NPV

RATE

Returns True if the referenced cell is blank. Returns False if the referenced cell is not blank.

Reference is a reference to any cell.

Example

ISBLANK(A1) returns True if A1 is a blank cell.

See Also

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNONTEXT](#)

[ISNUMBER](#)

[ISREF](#)

[ISTEXT](#)

Determines if the specified expression returns an error value.

True is returned if the expression returns any error except #N/A!. Otherwise, False is returned.

For a list of error values, see Error Values in BlackBox Help.

Example

ISERR(A1) returns True if the formula in A1 returns an error (e.g., #NUM!).

See Also

ISBLANK

ISERROR

ISLOGICAL

ISNA

ISNONTTEXT

ISNUMBER

ISREF

ISTEXT

Determines if the specified expression returns an error value.

True is returned if the expression returns any error value. Otherwise, False is returned.

Click for a list of [error values](#).

Example

ISERROR(A1) returns False if the formula in A1 does not return an error.

See Also

[ISBLANK](#)

[ISERR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNONTEXT](#)

[ISNUMBER](#)

[ISREF](#)

[ISTEXT](#)

Determines if the specified expression returns a logical value.

True is returned if the expression returns a logical value. Otherwise, False is returned.

Example

ISLOGICAL(ISBLANK(A1)) returns True, ISBLANK returns a logical value.□

See Also

ISBLANK

ISERR

ISERROR

ISNA

ISNONTEXT

ISNUMBER

ISREF

ISTEXT

Determines if the specified expression returns the value not available error.

True is returned if the expression returns the #N/A! error. Otherwise, False is returned.

Example

ISNA(A1) returns True if the NA() function is contained in cell A1 or returns the error value #N/A!.

See Also

[ISBLANK](#)

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNONTEXT](#)

[ISNUMBER](#)

[ISREF](#)

[ISTEXT](#)

Determines if the specified expression is not text.

True is returned if the expression returns any value that is not text. Otherwise, False is returned.

Examples

ISNONTEXT("text") returns False

ISNONTEXT(A3) returns True if cell A3 is a blank cell or contains a number.

See Also

[ISBLANK](#)

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNUMBER](#)

[ISREF](#)

[ISTEXT](#)

Determines if the specified expression is a number.

True is returned if the expression returns a number. Otherwise, False is returned.

False is returned if expression returns a number represented as text.

Examples

ISNUMBER("525") returns False

ISNUMBER(525.55) returns True

See Also

[ISBLANK](#)

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNONTTEXT](#)

[ISREF](#)

[ISTEXT](#)

Determines if the specified expression is a range reference.

True is returned if the expression returns a range reference. Otherwise, False is returned.

Example

ISREF(A3) returns True

See Also

[ISBLANK](#)

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNONTEXT](#)

[ISNUMBER](#)

[ISTEXT](#)

Determines if the specified expression is text.

True is returned if the expression returns text. Otherwise, False is returned.

Examples

ISTEXT("9th Inning") returns True

See Also

[ISBLANK](#)

[ISERR](#)

[ISERROR](#)

[ISLOGICAL](#)

[ISNA](#)

[ISNONTEXT](#)

[ISNUMBER](#)

[ISREF](#)

Returns text consisting of the leftmost characters from the specified text string.

Text is any text string.

Num_chars is the number of characters to return. The value must be greater than or equal to zero. The entire string is returned if num_chars is greater than the number of characters in text. If num_chars is omitted it assumes a value of 1.

Examples

LEFT("six seven eight") returns "six"

LEFT("9th Inning") returns "9th" □

See Also

MID

RIGHT

Returns the number of characters in the text string. Letters, numbers, and spaces are counted as characters.

Examples

LEN("1-3") returns 3

LEN("") returns 0

See Also

EXACT

SEARCH

Returns the natural logarithm of a number, based on the constant e.

Examples

LN(20.09) returns 3.00

LN(86) returns 4.45

See Also

[EXP](#)

[LOG](#)

[LOG10](#)

Returns the logarithm of a number to base.

Examples

LOG(10) returns 1

LOG(1) returns 0

See Also

[EXP](#)

[LN](#)

[LOG10](#)

Returns base 10 logarithm of a number.

Examples

LOG10(10) returns 1

LOG10(100) returns 2

See Also

[EXP](#)

[LN](#)

[LOG](#)

Searches for a value in one range and returns the contents of the corresponding position in a second range.

The value for which to search in the first range is `lookup_value`.

The first range to search, and contains only one row or one column is `lookup_range`. The range can contain text, numbers, or logical values.

The expressions in the range must be placed in ascending order to search `lookup_range` correctly. The search is not case-sensitive.

A range of one row or one column that is the same size as `lookup_range` is `result_range`.

If `lookup_value` does not have an exact match in `lookup_range`, the largest value that is less than or equal to `lookup_value` is found, and the corresponding position in `result_range` is returned.

#N/A is returned when `lookup_value` is smaller than the data in `lookup_range`.

See Also

[HLOOKUP](#)
[INDEX](#)
[VLOOKUP](#)

Returns the characters in the text string to lowercase characters. Numeric characters in the text are not changed.

Examples

LOWER("Fireplace") returns "fireplace"
LOWER("NEW YORK") returns "new york"

See Also

PROPER
UPPER

A specified value is compared against values in a range. Position of the matching value in the search range is returned.

Lookup_value is the value against which to compare. It can be text, a number, or logical value or a reference to a cell that contains one of those values.

Lookup_range is the range to search and contains just one row or one column. The range can contain text, numbers, or logical values.

Comparison is a number that represents the type of comparison to be made between lookup_value and the values in lookup_range. Omitting this argument, comparison method 1 is to be assumed.

When comparison is 1, then the largest value that is less than or equal to lookup_value is matched. The values in lookup_range must be in ascending order.

When comparison is 0, then the first value that is equal to lookup_value is matched. The values in lookup_range can be in any order.

When comparison is -1, then the smallest value that is greater than or equal to lookup_value is matched. The values in lookup_range must be in descending order.

When using comparison method 0 and lookup_value is text, lookup_value can contain wildcard characters, asterisk (*). The wildcard characters, asterisk (*) match any sequence of characters. The question mark (?) matches any single character.

#N/A is returned when no match is found for lookup_value.

See Also

[HLOOKUP](#)

[INDEX](#)

[LOOKUP](#)

[VLOOKUP](#)

Returns the largest value in the specified list of numbers.

A list of as many as 30 numbers, separated by commas is a number_list.

The list can contain logical values, text representation of numbers, numbers, or a reference to a range containing those values.

Text or error values that cannot be translated into numbers return errors.

If a range reference is included in the text, logical expressions, list, and empty cells in the range are ignored.

0 is returned if there are no numbers in the list.

Example

MAX(50, 100, 150, 500, 200) returns 500

See Also

AVERAGE

MIN

Returns the number of characters from a text string, beginning with the character at **start_num**.

The position of the first character to return from **text** is **start_num**.

The number of characters to return is **num_chars**.

If **start_num** is 1, the first character in text is returned. If **start_num** is greater than the number of characters in text, an empty string ("") is returned. If **start_num** is less than 1, #VALUE! is returned. If **num_chars** is negative, VALUE! is returned.

Examples

MID("Shopping Expenses", 8, 8) returns "Expenses"

MID("Hello there" ,1,5) returns "Hello"

See Also

CODE

FIND

LEFT

RIGHT

SEARCH

Returns the smallest value in the specified list of numbers.

A list of as many as 30 numbers, separated by commas is a number_list.

The list can contain logical values, numbers, text representation of numbers, or a reference to a range containing those values.

Text or error values that cannot be translated into numbers return errors.

If a range reference is included in the text, logical expressions, list, and empty cells in the range are ignored.

0 is returned if there are no numbers in the list.

Example

MIN(50, 100, 150, 500, 200) returns 50

See Also

AVERAGE

MAX

Returns the minute corresponding to serial_number.

Serial_number is the time as a serial number. The decimal portion of the number represents time as a fraction of the day.

An integer ranging from 0 to 59 is the result.

Examples

MINUTE(34506.4) returns 36

MINUTE(.01) returns 14

See Also

DAY

HOUR

MONTH

NOW

SECOND

WEEKDAY

YEAR

Returns the modified internal rate of return for a series of periodic cash flows.

A reference to a range that contains values for which to calculate the modified internal rate of returns is `cash_flow`. The values must contain at least one negative and one positive value.

MIRR uses the order in which the values appear to determine the order of cash flow, during calculation

Positive values represent cash receive; negative values represent cash paid.

Empty cells in the range are ignored. Text and logical values are also ignored.

The interest rate paid on money used in the cash flow is `finance_rate`.

The interest rate received on money reinvested from the cash flow is `reinvest_rate`.

The modified internal rate of return considers the cost of the investment and the interest received on the reinvestment of cash.

See Also

[IRR](#)
[NPV](#)
[RATE](#)

Returns the remainder after a number is divided by a specified divisor.

Divisor is any non-zero number. #DIV/0! is returned if divisor is 0.

Examples

MOD(3,2) returns 1

MOD(-3,-2) returns -1

See Also

INT

ROUND

TRUNC

Returns the month that corresponds to the supplied date.

Serial_number is the date as a text or as a serial number.

MONTH returns a number ranging from 1 to 12 (January to December).

Examples

MONTH("06/05/95") returns 6

MONTH("08/23/75") returns 8

See Also

DAY

NOW

HOUR

MINUTE

SECOND

TODAY

WEEKDAY

YEAR

If value is a number, returns that number.

Value is a reference to a cell containing a value to test.

Examples

N(32467) returns 32467

N(A4) returns 1 if A4 contains the logical function True

See Also

I
VALUE

Returns the error value #N/A, which represents "no value is available."

NA marks cells that lack data without leaving them empty. Empty cells may not be correctly represented in some calculations.

See Also

[ISNA](#)

Returns a logical value that is the opposite of its value.

Examples

NOT(TRUE) returns False

NOT(2+2=4) returns False

See Also

AND

IF

OR

Returns the current date and time as a serial number.

In a serial number, date is represented by numbers to the left of the decimal point; time is represented by numbers to the right of the decimal point. When a recalculation of the worksheet occurs, then the result of this function changes.

See Also

DATE

DAY

HOUR

MINUTE

MONTH

SECOND

TODAY

WEEKDAY

YEAR

Returns the number of period of an investment based on regular periodic payments and a fixed interest rate.

The fixed interest rate is interest.

The fixed payment made each period is pmt. Pmt includes the principle and interest, not taxes or other fees.

The present value, the lump-sum amount that a series of future payments is currently worth is pf.

The future value, the balance to attain after the final payment is fv. This argument omitted assumes a future balance of 0.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Examples

NPER(12%/12, -350, -300, 16000, 1) returns 36.67

NPER(1%, -350, -300, 16000) returns 36.98

See Also

FV

IPMT

PMT

PPMT

PV

RATE

Returns the net present value of an investment based on a series of periodic payments and a discount rate.

The rate of discount for one period is `discount_rate`.

A list of as many as 29 arguments or a reference to a range that contains values that represent payments and income is `value_list`.

NPV, during calculation, uses the order in which the values appear to determine the order of cash flow.

Included in the calculation are numbers, empty cells, and text representations of numbers.

Only numeric data in the range is included in the calculation, if `value_list` is a range reference. Other types of data in the range are ignored.

The time span NPV uses for calculation begins one period before the first cash flow date and ends when the last cash flow payment is made. This function is based on future cash flows. When your first cash flow occurs at the beginning of the first period, the first value must be added to the NPV result, not supplied as a value in `value_list`.

Example

`NPV(8%, -1200, 3000, 3000, 3000, 7000)` returns 8115.57

See Also

[FV](#)
[IRR](#)
[PV](#)

Rounds number up to the nearest odd integer.

Examples

ODD(3) returns 3

ODD(6) returns 7

See Also

[CEILING](#)

[EVEN](#)

[FLOOR](#)

[INT](#)

[ROUND](#)

[TRUNC](#)

Returns the contents of a range that is offset from a starting point in the spreadsheet.

Reference is a reference to a cell from which the offset reference is based. #VALUE! is returned when you specify a range reference.

The number of rows from reference that represents the upper-left cell of the offset range is rows.

A positive number represents rows below the starting cell; a negative number represents rows above the starting cell. #REF! is returned if rows places the upper-left cell of the offset range outside the spreadsheet boundary.

The number of columns from reference that represents the upper-left cell of the offset range is columns. A positive number represents columns right of the starting cell; a negative number represents columns left of the starting cell.

#REF! is returned if columns places the upper-left cell of the offset range outside the spreadsheet boundary.

A positive number representing the number of rows to include in the offset range is height. A single row is assumed if this argument is omitted.

A positive number representing the number of columns to include in the offset range is width. A single column is assumed if this argument is omitted.

OFFSET does not change the current selection in the worksheet, for it returns a reference. OFFSET can be used in any function that requires or uses a range reference or a cell as an argument.

Examples

OFFSET(C3,2,3,1,1) returns F5

OFFSET(B1,3,2,1,1) returns D4

Returns True if any of a series of logical arguments is true. Returns False if any of a series of logical arguments is false.

Logical_list is a list of conditions separated by commas. Logical_list can have 1 to 30 conditions in the list. The list can contain logical values or a reference to a range containing logical values. Text and empty cells are ignored.

#VALUE! is returned if there are no logical values in the list.

Examples

OR(TRUE()) returns true

OR(1+1=1, 2+2=5) returns false

See Also

AND

IF

NOT

Returns the value of pi, which is approximately the number 3.14159 when calculated to 15 significant digits.

PI does not use arguments. You must include empty parentheses to correctly reference the function.

Example

PI()/2 returns 1.57079

See Also

[COS](#)
[SIN](#)
[TAN](#)

Based on regular payments and a fixed periodic interest rate, PMT returns the periodic payment of an annuity.

The fixed periodic interest rate is *interest*.

The number of period in the annuity is *nper*.

The present value, or the amount the annuity is currently worth is *pv*.

The future value, or the amount the annuity will be worth is *fv*. Omitting this argument, 0 is assumed.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

PMT does not include taxes or other fees, it only returns the principal and interest payment.

The units used for interest must match those used for *nper*. For example, if the annuity has an 8% annual interest rate over a period of 5 years, specify 8%/12 for interest and 5*12 for *nper*.

Cash paid out, is shown as a negative number. Cash received, is shown as a positive number.

Examples

PMT(8%/12,10,0,10000,1) returns -\$963.94

PMT(8%/12, 48, 18000, 0, 1) returns -436.52

See Also

IPMT

FV

NPER

PPMT

PV

RATE

Returns the principle paid on an annuity for a given period.

The fixed periodic interest rate is *interest*.

The period for which to return the principle is *per*.

The number of period in the annuity is *nper*.

The present value, or the amount the annuity is currently worth is *pv*.

The future value, or the amount the annuity will be worth is *fv*. Omitting this argument, 0 is assumed.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Units used for interest must match those used for *nper*. For example, if the annuity has an 8% annual interest rate over a period of 5 years, specify 8%/12 for interest and 5*12 for *nper*.

Examples

PPMT(8%/12, 2, 48, 18000) returns -321.56

PPMT(8%/12, 2, 48, 18000, 0, 1) returns -319.43

See Also

FV

IPMT

NPER

PMT

PV

RATE

Multiplies a list of numbers and returns the result.

A list of as many as 30 numbers, separated by commas is number_list.

The list can contain logical values, numbers, text representation of numbers, or a reference to a range containing those values.

Text or error values that cannot be translated into numbers return errors.

If a range reference is included in the text, logical expression, list, and empty cells in the range are ignored.

All numeric values, including 0, are used in the calculation.

Example

PRODUCT(2, 3, 4) returns 24

See Also

FACT
SUM

Returns the text string in proper -case format.

The first character in a word is capitalized. If a character follows a number, punctuation mark, or space, it is capitalized. All other characters are in owercase format. Characters that are not letters are unchanged.

Examples

PROPER("9th Inning") returns "9Th Inning"
PROPER("NEW YORK") returns "New York"

See Also

LOWER
UPPER

Returns the present value of an annuity, considering a series of constant payments made over a regular payment period.

The fixed periodic interest rate is interest.

The number of payment periods in the investment is nper.

The fixed payment made each period is pmt.

The future value, or the amount the annuity will be worth is fv. Omitting this argument, a future value of 0 is assumed.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Units used for interest must match those used for nper. For example, if the annuity has an 8% annual interest rate over a period of 5 years, specify 8%/12 for interest and 5*12 for nper.

Cash paid out, is shown as a negative number. Cash received, is shown as a positive number.

Examples

PV(8%/12, 48, 439.43) returns -17999.89

PV(8%/12, 48, -439.43) returns 17999.89

See Also

FV
IPMT
NPER
PMT
PPMT
RATE

Returns a number selected randomly greater than or equal to 0 and less than 1.

RAND does not use arguments. You must include empty parentheses to correctly reference the function.

Example

`RAND()*10` returns a random number greater than or equal to 0 and less than 10.

Given a series of constant cash payments made over a regular payment period, RATE returns the interest rate per period of an annuity.

The number of period in the annuity is nper.

The future value, or the amount the annuity will be worth is fv. Omitting this argument, a future value of 0 is assumed.

Type indicates when payments are due. 0 is used if payments are due at the end of the period or 1 if payments are due at the beginning of the period. Omitting this argument, 0 is assumed.

Your estimate of the interest rate is guess. If no argument is supplied, a value of .1 (10%) is assumed.

RATE is calculated iteratively, cycling through the calculation until the result is accurate to .00001 percent. If the result cannot be found after 20 iterations, #NUM! is returned. Supply a different value for guess, when this occurs.

Example

RATE(48, -439.43, 18000) returns .0067 (rounded to 4 decimals), which is the monthly interest rate. The annual interest rate (.0067 multiplied by 12) is 8%

See Also

FV

IPMT

NPER

PMT

PPMT

PV

Starting at start_num, removes num_chars characters from old text and replaces them with new_text.

Examples

REPLACE("1981", 3,2,"82") returns "1982"
REPLACE("fbcde", 1,1, "a") returns "abcde"

See Also

MID
SEARCH
TRIM

Repeats text a specified number of times.

Text is any string.

Number is the number of times that you want text to repeat. Number must be greater than or equal to zero. If number is 0, empty text ("") is returned.

The result of REPT cannot exceed 255 characters.

Examples

REPT("star",4) returns "star star star star")

REPT("baby",3) returns "baby baby baby")

See Also

MANIPULATING TEXT FUNCTIONS

Returns text consisting of the rightmost characters from the specified text string.

Num_chars is the number of characters to return. The value must be greater than or equal to zero. If num_chars is greater than the length of text, the entire string is returned. If num_chars is omitted it then assumes a value of 1.

Examples

RIGHT("9th Inning") returns "g"
RIGHT("9th Inning", 6) returns "Inning"

See Also

LEFT
MID

Rounds a given number to the specified decimal places.

Examples

ROUND(3.15) returns 3.2

ROUND(3.22) returns 3.2

See Also

[CEILING](#)

[FLOOR](#)

[INT](#)

[MOD](#)

[TRUNC](#)

Returns the row number of the supplied reference.

Reference is a cell. If reference is omitted it is assumed to be the reference of the cells in which the function ROW is entered.

Example

ROW(C3) returns 3

See Also

[COLUMN](#)
[ROWS](#)

Returns the number of rows in a range reference.

Examples

ROWS(A1:D5) returns 5

ROWS(A1:C4) returns 4

See Also

COLUMNS

ROW

Searches for find_text within text. Starts search at character specified by start_position. The search is not case-sensitive.

If text does not contain the search string, #VALUE! is returned. If the number you specify is less than 0 or greater than the number of characters in text, #VALUE! is returned. If this argument is omitted then the starting position is assumed to be 1.

Examples

SEARCH("o","loud voices") returns 2
SEARCH("o","loud voices",2) returns 2

See Also

FIND

MID

REPLACE

SUBSTITUTE

Returns the second corresponding to serial_number.

Serial_number is the time as a serial number. The decimal portion of the number represents time as a fraction of the day.

Examples

SECOND(.259) returns 58
SECOND(0.01) returns 24

Examples

DAY
HOUR
MINUTE
MONTH
NOW
SECOND
WEEKDAY
YEAR

Serial numbers range from 1 to 65,380, corresponding to the dates January 1, 1900, through December 31, 2078.

Numbers to the right of the decimal point in the serial number represent the time; numbers to the left represent the date. For example, the serial number 367.5 represents the date-time combination 12:00P.M., January 1, 1901.

The Show command enables you to show and hide formulas, gridlines, row heading, column heading and zeros.

Formulas Show or hide formulas in place of cell values.
Gridlines Show or hide Gridlines.
Row Heading Show or hide row heading.
Column Heading Show or hide column heading.
Zeros Show or hide zero value cells.

Determines the sign of a number.

Number is any number. If number is positive, returns 1. If number is zero, returns 0. If number is negative, returns -1.

Examples

SIGN(123) returns 1

SIGN(4-4) returns 0

See Also

[ABS](#)

Returns the sine of number.

Number is the angle in radians. If the angle is in degrees, multiply the angle by $\text{PI}()/180$, to convert to radians.

Examples

$\text{SIN}(\text{PI}()/2)$ returns 1

$\text{SIN}(90)$ returns .89

See Also

[ASIN](#)

[PI](#)

Returns the hyperbolic sine of number.

Number is the angle in radians. If the angle is in degrees, multiply the angle by $\text{PI}()/180$, to convert to radians.

See Also

[ASINH](#)
[PI](#)

Returns the depreciation of an asset for a specific period of time using the straight-line balance method.

The initial cost of the asset is cost.

The salvage value of the asset is salvage.

The number of periods in the useful life of the asset is life.

Example

SLN(10000, 1000, 7) returns 1285.71

See Also

DDB

SYD

VDB

Returns square root of a number.

Number is a positive number. If a negative number is specified, #NUM! returns the error value.

Examples

SQRT(25) returns 5

SQRT(-25) returns #NUM!

See Also

[SUMSQ](#)

Returns the standard deviation of a population based on a sample of supplied values. The standard deviation of a population represents an average of deviations from the population mean within a list of values.

A list of as many as 30 numbers, separated by commas is a number_list. The list can contain numbers or a reference to a range that contains numbers.

Example

STDEV(4.0, 3.0, 3.0, 3.5, 2.5, 4.0, 3.5) returns .56

See Also

STDEVP

VAR

VARP

Returns the standard deviation of a population based on an entire population of values. The standard deviation of a population represents an average of deviations from the population mean within a list of values.

A list of as many as 30 numbers, separated by commas is a number_list. The list can contain numbers or a reference to a range that contains numbers.

Example

STDEVP(4.0, 3.0, 3.0, 3.5, 2.5, 4.0, 3.5) returns .52

See Also

STDEV

VAR

VARP

Substitutes new_text for old_text in a text string. Instance_num specifies the occurrence of old_text to replace. If this argument is omitted, every instance of old_text is replaced with new_text.

Examples

SUBSTITUTE("cake", "c", "b") returns "bake"

SUBSTITUTE("Sixth Inning Results", "Sixth", "Ninth") returns "Ninth Inning Results"

See Also

REPLACE

TRIM

Returns the sum of the supplied numbers.

A list of as many as 30 numbers, separated by commas is a number_list.

The list can contain logical values, numbers, text representation of numbers, or a reference to a range containing those values.

Text or error values that cannot be translated into numbers return errors.

If a range reference is included in the text, logical expressions, list, and empty cells in the range are ignored.

Examples

SUM(A1:A3) returns 15

SUM(1000, 3000, 5000) returns 9000

See Also

AVERAGE

COUNT

COUNTA

PRODUCT

SUMSQ

Squares each of the supplied numbers and returns the sum of the squares.

A list of as many as 30 numbers, separated by commas is a number_list.

The list can contain logical values, text representation of numbers, numbers, or a reference to a range containing those values.

Text or error values that cannot be translated into numbers return errors.

If a range reference is included in the text, logical expressions, list, and empty cells in the range are ignored.

Example

SUMSQ(9, 10, 11) returns 302

See Also

SUM

Returns the depreciation of an asset for a specified period using the sum-of-years method. This depreciation method uses an accelerated rate, where the greatest depreciation occurs early in the useful life of the asset.

The initial cost of the asset is cost.

The salvage value of the asset is salvage.

The number of periods in the useful life of the asset is life.

The period for which to calculate the depreciation is period. The time units used to determine period and life must match.

Example

SYD(10000, 1000, 7, 3) returns 1607.14

See Also

DDB

SLN

VDB

Returns the value if it is text. Any value that is not text, T returns empty text ("").

Examples

T(A1) returns "" (empty text) if A1 contains a number

T("School") returns "School"

See Also

CELL

N

VALUE

Returns the tangent of a given angle.

Number is the angle in radians. Multiply the degrees by $180/\text{PI}()$ to convert a number expressed as degrees.

Examples

TAN(45) returns 1.62

TAN(0.785) returns 0.99204

See Also

[ATAN](#)
[PI](#)

Returns the hyperbolic tangent of number.

Number is the angle in radians. If the angle is in degrees, multiply the angle by $\text{PI}()/180$, to convert to radians.

See Also

[ATANH](#)
[PI](#)

ISBLANK
ISERR
ISERROR
ISLOGICAL
ISNA
ISNONTEXT
ISNUMBER
ISREF
ISTEXT

Returns the given number as text, using the specified formatting.

Number is any value, a formula that evaluates to a number that contains a value.

Format is a string representing a number format. The string can be any valid format string. Format must be surrounded by a set of double quotation marks. Format cannot contain an asterisk (*).

Examples

TEXT(6.145, "\$0.00") returns "\$6.15"

TEXT("8/23/1975", "mmm d, yyyy") returns "August 23, 1975"

See Also

DOLLAR
FIXED

I
VALUE

Returns a serial number for the supplied time specified by hour, minute, and second.

A number from 0 to 23 is hour.

A number from 0 to 59 is minute.

A number from 0 to 59 is second.

Examples

TIME(12, 26, 24) returns .52

TIME(12, 0, 0) returns 0.5

See Also

HOUR

MINUTE

NOW

SECOND

TIMEVALUE

NOW
HOUR
MINUTE
SECOND
TIME
TIMEVALUE

Returns a serial number for the supplied text representation of time.

Serial_Number is the time as a serial number. The decimal portion of the number represents time as a fraction of the day.

Text is a time in text format.

Examples

TIMEVALUE("2:24 AM") returns 0.1

TIMEVALUE("1:43:43 am") returns .07

See Also

HOUR

MINUTE

NOW

SECOND

TIME

Returns the current date as a serial number.

TODAY does not use arguments. You must include empty parentheses to correctly reference the function.

See Also

DATE

DAY

NOW

Removes all spaces from text except for a single space between words.

Examples

TRIM(" Look at me now! ") returns : "Look at me now!"

TRIM(" Stop, drop, and roll ") returns "Stop, drop, and roll"

See Also

CLEAN

MID

REPLACE

SUBSTITUTE

Returns the logical value True. You must include the parentheses when using this function.

See Also

FALSE

Rounds number down to nearest integer.

Precision argument is optional, if omitted it is assumed to be zero.

Examples

TRUNC(9.975,0) returns 9

TRUNC(6899.435, -2) returns 6800

See Also

[CEILING](#)

[FLOOR](#)

[INT](#)

[MOD](#)

[ROUND](#)

Returns a number indicating the type of the given expression.

Expression types and numbers:

Expression type	Number
-----------------	--------

Number	1
--------	---

Text <u>string</u>	2
--------------------	---

Logical value	4
---------------	---

Error value	16
-------------	----

An array	64
----------	----

Examples

TYPE(A1) returns 1 if cell A1 contains a number.

TYPE("Customer") returns 2

See Also

ISBLANK

ISERR

ISERROR

ISLOGICAL

ISNA

ISNONTTEXT

ISNUMBER

ISREF

ISTEXT

Returns the characters in the text string to uppercase characters. Numeric characters in the text are not changed.

Examples

UPPER("Fireplace") returns FIREPLACE
UPPER("NEW YORK") returns NEW YORK

See Also

LOWER
PROPER

Returns the text as a number.

Text can be any text string, a cell reference that contains a text string, or a formula that evaluates to a text string. Value can also return the text in date or time formats. If the format is not recognized then #VALUE! is returned.

Examples

VALUE(9800) returns 9800
VALUE("\$2,000") returns 2000

See Also

DOLLAR
TEXT

Returns the variance of a population based on a sample of values.

A list of as many as 30 numbers, separated by commas is a number_list. The list can contain numbers or a reference to a range that contains numbers.

Examples

VAR(4.0, 3.0, 3.0, 3.5, 2.5, 4.0, 3.5) returns .31

See Also

[STDEV](#)
[STDEVP](#)
[VARP](#)

Returns the variance of a population based on an entire population of values.

A list of as many as 30 numbers, separated by commas is a number_list. The list can contain numbers or a reference to a range that contains numbers.

Examples

VARP(4.0, 3.0, 3.0, 3.5, 2.5, 4.0, 3.5) returns .27

See Also

[STDEV](#)
[STDEVP](#)
[VAR](#)

Returns the depreciation of assets for a specified period using a variable method of depreciation.

The initial cost of the asset is cost.

The salvage value of the asset is salvage.

The number of periods in the useful life of the asset is life.

The beginning period for which to calculate the depreciation is start_period. The time units used to determine start_period and life must match.

The ending period for which to calculate the depreciation is end_period. The time units used to determine end_period and life must match.

The rate at which the balance declines is factor. Omitting this argument assumes a default of 2, which is the double-declining balance factor.

A logical value that determines if you want to switch to straight-line depreciation when depreciation is greater than the declining balance calculation. Use True to maintain declining balance calculation; use False or omit the argument to switch to straight-line depreciation calculation.

Example

VDB(10000, 1000, 7, 3, 4) returns 1041.23

See Also

DDB

SLN
SYD

Searches the first column of a table for a value, and returns the contents of a cell in that table that corresponds to the location of the search value.

Search_item is a text string, value, or reference to a cell containing a value that is matched against data in the top row of search_range.

Search_range is the reference of the range to be searched. Cells in the first column of search_range can contain text, numbers, or logical values. Contents of the first column must be in ascending order.

Text searches are not case-sensitive.

Column_index is the column in the search range from which returned is the matching value. Column_index can be a number from 1 to the number of rows in the search range.

#VALUE! is returned if column_index is less than 1.

#REF! is returned when column_index is greater than the number of rows in the table.

VLOOKUP compares the information in the first column of search_range to the supplied search_item. Column_index is returned when a match is found and information is located in the same row.

The largest value that is less than search_item is used when search_item cannot be found in the first column of search_range.

#REF! is returned when search_item is less than the smallest value in the first column of the search range.

See Also

HLOOKUP
INDEX
LOOKUP
MATCH

Returns the day of the week that corresponds to the supplied date.

Serial_number is the date as text or as a serial number.

WEEKDAY returns a number ranging from 1 to 7. (Sunday to Saturday).

Example

WEEKDAY("06/05/95") returns 2, indicating Monday

See Also

DAY
NOW
TEXT
TODAY

Returns the year corresponding to the supplied date.

Serial_number is the date as a text or as a serial number.

Examples

YEAR("08/23/75") returns 1975

YEAR(34328) returns 1993

See Also

DAY

NOW

HOUR

MINUTE

MONTH

SECOND

TODAY

WEEKDAY

string

String means "chain of text" and can describe a word, sentence or paragraph of text.

