column in the panel. Then choose the specific function from the right column.

- Click *Insert With Arguments* or *Insert*.

Insert With Arguments includes placeholder arguments in the input window, which you can select and substitute with valid arguments. Insert positions the insertion point between the parentheses so you can add valid arguments immediately.

Enter the arguments in any of the following ways:

- Type the references, constants, or formulas.
- Click cell references. To enter a range (or a named range) as a reference, click and drag the range. ParaSheet automatically enters the colon between the beginning and ending cells.
- Choose other functions (as arguments) from the Functions panel.
- Press Enter, Return, Tab, or an arrow key to complete the formula.

To type a function:

- Type "=" to begin entering a formula.
- Type the function name. Don't worry about capitalization, since ParaSheet accepts the function name regardless of capitalization. Remember to type the beginning and ending parentheses.
- Enter the arguments with commas between them. If you're using cell references as arguments, you can point to them with the mouse. To enter a range as a reference, click and drag the range. ParaSheet automatically enters the colon between the beginning and ending cells.

Note *You can type functions with or without spaces between the parts. ParaSheet immediately removes unnecessary spaces when you press Enter, Return, Tab, or an arrow key to complete the formula. For example, when you enter =Int (5.35 * 1.07), ParaSheet converts it to =Int (5.35*1.07). Do not put spaces in the function name itself, or within constants or cell references.*

function with cell references as arguments is =Sum(B2,B4,B6). This formula adds the values in cells B2, B4, and B6. The total changes if any of the values in these cells change. Cell references can also be included in the form of named ranges.

You can also compose function arguments that are *expressions*. An expression would be a formula itself if entered alone in a cell preceded by =, +, or –.

Of course, it is possible to combine the types of arguments in a single function. For example:

- =Avg(3.71,4.65,2.07) uses only constants
- =Avg(A17:A31) uses only cell references
- =Avg((A31*5)*1.07,25) uses cell references and constants
- =Sum(3,A35,(17*115)+.5,Avg(A17:A31)) uses cell references, constants, and multiple expressions

Functions and their arguments follow all the rules of formulas. The contents of parentheses are calculated first, and operators have the same order of precedence.

For more information on working with formulas and operators, refer to the previous chapter.

Parentheses in Functions

A pair of left and right parentheses must appear after all functions. Any arguments go between the parentheses. Function arguments can contain other pairs of parentheses, with arguments inside of them. Make sure there is a right parenthesis for every left parenthesis.

Basic Steps for Using Functions

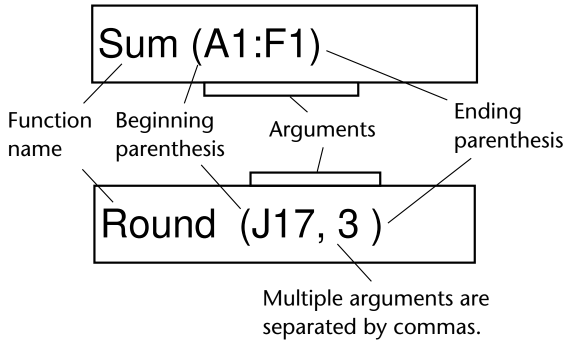
Functions may be entered using the Functions panel, or by typing them directly in the input window.

To use the Functions panel to enter a function:

- Select a cell and type "=" to begin the formula.
- Choose *Functions* from the Tools menu or click the  button on the icon bar. Click the category of function you want from the left

Parts of a Function

Most functions are made up of three easily recognized parts: the function *name*, a pair of parentheses, and the contents of the parentheses – the *arguments*.



Function Names

In most cases, the function name is an abbreviation of a word. For example, Avg stands for *average* and Pmt stands for *payment*. The name always starts the function and is always followed by a pair of parentheses.

If you don't immediately recognize what the name stands for, refer to the "Using Functions" section beginning on page 49 in ParaSheet's Macro and Function Reference manual.

Arguments of Functions

The *arguments* of a function are the values on which the function operates. When more than one argument is used in a function, the arguments must be separated by commas. There are three kinds of arguments you can specify for a function: constants, cell references, and expressions.

Constants are numeric values or text strings. Unlike cell references, constants do not change their value when the spreadsheet is recalculated; in other words, their value is constant. An example of a function with constants as arguments is =Sum(12,4,6). This formula always yields 22, the sum of 12, 4, and 6.

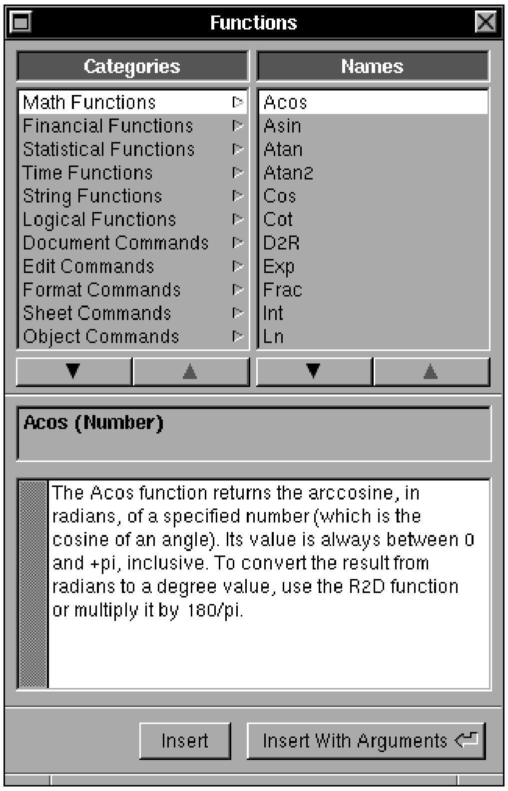
Functions with *cell references* as arguments calculate different results depending upon the values in the referenced cells. An example of a

- The *Statistical* functions are for statistical operations and analysis, such as calculating averages, variance, minima, and maxima. Their names are Abs, Avg, Ceiling, Count, Floor, Max, Min, Round, StdDev, Sum, and Variance.
- The *Time* functions help you create formulas based on dates and times – for example, formulas that figure elapsed time or calculate future dates. Their names are Date, Day, DOW, Hour, Minute, Month, Now, Second, Time, Time2C, and Year.
- The *String* functions are for manipulating and evaluating text in the spreadsheet – for example, determining the length of text strings and the ASCII values of characters. Their names are ASC, Chr, Left, Length, Mid, Num2C, and Right.
- The *Logical* functions compare values, determine the type of a value (text, numeric, null, or an error code), and perform other logical operations. Their names are Choose, Err, Error, False, IfErr, IfX, IsNull, IsNum, IsText, NA, and True.

Choosing functions from the Functions panel and placing them in formulas, alleviates you from having to memorize names or worry about typing them exactly.

Note *The Sum function appears in both the Math and Statistical categories for your convenience, since it is used in both mathematical and statistical operations.*

Functions are listed with commands and statements.

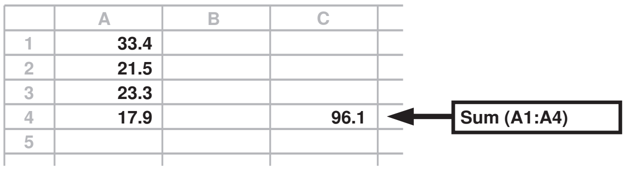


Functions, commands, and statements are all elements of the WILMA language. For information on commands and statements, please refer to the “About Commands” section on page 6 and the “About Statements” section on page 8 of ParaSheet’s Macro and Function Reference manual.

The Functions panel contains six categories of functions:

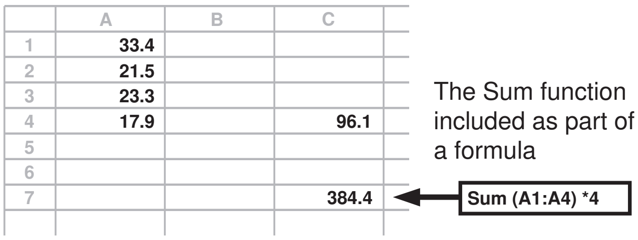
- The *Math* functions are used in mathematical operations, including trigonometric and logarithmic calculations. Their names are Acos, Asin, Atan, Atan2, Cos, Cot, D2R, Exp, Frac, Int, Ln, Log, Mod, Pi, R2D, Random, Sign, Sin, Sqrt, Sum, and Tan.
- The *Financial* functions perform calculations dealing with money, such as loans, interest, and present and future values. Their names are Annuity, Compound, DB, FV, IRR, NPV, Pmt, PV, SL, and SOYD.

Functions can be used alone in a formula:



The Sum function used alone in a formula.

Or, as a part of a more complex formula. A function that is part of a formula provides a value to be used in the formula. When ParaSheet calculates the formula, the single value the function provides is used in the calculation (as shown below).



Types of Functions

ParaSheet divides functions into six categories, all of which can be accessed through the Functions panel.

To raise the Functions panel, choose *Functions* from the Tools menu.

Chapter 7

Using Functions

Functions are added to formulas to perform specific calculations. For example, if you're figuring out your mortgage payment based on today's interest rate, there is a financial function that will determine this calculation. This chapter describes the types of functions available, and how they are added to formulas.

What Is a Function?

A *function* is an instruction you put into a formula to perform a calculation in your spreadsheet. The result of a function's calculation is a single value.