SAS Functions

Sometimes a simple expression, using only arithmetic operators, does not give you the new value you are looking for. This is where SAS functions are handy, they can simplify your task because SAS has already done the programming for you. All you need to do is plug the right values into the function.

SAS has hundreds of functions in general areas listed as below

Character	Macro
Character String Matching	Mathematical
Date and Time	Probability
Descriptive Statistics	Random Number
Distance	State and ZIP Code
Financial	Variable Information

SAS functions perform a calculation or a transformation on the arguments given in parentheses following the function name. SAS functions have the following general form:

function-name(argument, argument, ...)

- All functions must have parentheses
- Arguments are separated by commas
- Arguments can be variable names, constant values such as numbers or characters enclosed in quotation marks, or expressions

The following statement computes Birthday as a SAS date value using the SAS function MDY and the variables MonthBorn, DayBorn, and YearBorn. The MDY function takes three arguments, one each for the month, day, and year:

Birthday = MDY(MonthBorn, DayBorn, YearBorn);

- Functions can be nested, where one function is the argument of another function. For example, the following statement calculates NewValue using two nested functions, INT and LOG:

NewValue = INT(LOG(10));

The result for this example is 2, the integer portion of the natural log of the numeric constant 10 (2.3026). Just be careful when nesting functions that each parenthesis has a mate.

Selected SAS Character Functions:

Function name	Syntax[3]	Definition
Character		
CATX	CATX('*separator-string*', *arg-1*,*arg-2*,…*arg-n*)	Concatenates two or more character strings together stripping leading and trailing blanks and inserting a separator string between arguments
COMPRESS	COMPRESS(*arg*, '*char*')	Removes spaces or optional characters from character string
LEFT	LEFT(*arg*)	Left aligns a SAS character expression
LENGTH	LENGTH(*arg*)	Returns the length of an argument not counting trailing blanks (missing values have a length of 1)
SUBSTR	SUBSTR(*arg*,*position*,*n*)	Extracts a substring from an argument starting at *position* for *n* characters or until end if no *n*[4]
TRIM	TRIM(*arg*)	Removes trailing blanks from character expression
UPCASE	UPCASE(*arg*)	Converts all letters in argument to uppercase

Selected SAS Character Functions (cont.):

Function name	Example	Result	Example	Result
Character				
CATX	a=' cat';b='dog '; x=CATX(' ',a,b);	x='cat dog'	a=' cat';b='dog '; y=CATX('&',a,b);	y='cat&dog'
COMPRESS	a=' cat & dog'; x=COMPRESS(a);	x='cat&dog'	a=' cat & dog'; y=COMPRESS(a,'&');	y=' cat dog'
LEFT	a=' cat'; x=LEFT(a);	x='cat '	a=' my cat'; y=LEFT(a);	y='my cat '
LENGTH	a='my cat'; x=LENGTH(a);	x=6	a=' my cat '; y=LENGTH(a);	y=7
SUBSTR[4]	a='(916)734-6281'; x=SUBSTR(a,2,3);	x='916'	y=SUBSTR('1cat',2);	y='cat'
TRIM	a='my '; b='cat'; x=TRIM(a)||b;[5]	x='mycat '	a='my cat '; b='s'; y=TRIM(a)||b;	y='my cats '
UPCASE	a='MyCat'; x=UPCASE(a);	x='MYCAT'	y=UPCASE('Tiger');	y='TIGER'

Selected SAS Numeric Functions:

Function name	Syntax[6]	Definition
Numeric		
LOG10	LOG10(*arg*)	Logarithm to the base 10
MAX	MAX(*arg-1*,*arg-2*,…*arg-n*)	Largest non-missing value
MEAN	MEAN(*arg-1*,*arg-2*,…*arg-n*)	Arithmetic mean of non-missing values
N	N(*arg-1*,*arg-2*, …*arg-n*)	Number of non-missing values
ROUND	ROUND(*arg*, *round-off-unit*)	Rounds to nearest round-off unit
SUM	SUM(*arg-1*,*arg-2*, …*arg-n*)	Sum of non-missing values
Date		
DAY	DAY(*date*)	Returns the day of the month from a SAS date value
MONTH	MONTH(*date*)	Returns the month (1-12) from a SAS date value
TODAY	TODAY()	Returns the current date as a SAS date value
WEEKDAY	WEEKDAY(*date*)	Returns day of week (1=Sunday) from SAS date value
YEAR	YEAR(*date*)	Returns year from a SAS date value

Selected SAS Numeric Functions (cont.):

Function name	Example	Result	Example	Result
Numeric				
LOG10	x=LOG10(1);	x=0.0	y=LOG10(10);	y=1.0
MAX	x=MAX(9.3,8,7.5);	x=9.3	y=MAX(-3,.,5);	y=5
MEAN	x=MEAN(1,4,7,2);	x=3.5	y=MEAN(2,.,3);	y=2.5
N	x=N(1,.,7,2);	x=3	y=N(.,4,.,.);	y=1
ROUND	x=ROUND(12.65);	x=13	y=ROUND(12.65,.1);	y=12.7
SUM	x=SUM(3,5,1);	x=9.0	y=SUM(4,7,.);	y=11
Date				
DAY	a=MDY(4,18,2 012); x=DAY(a);	x=18	a=MDY(9,3,60); y=DAY(a);	y=3
MONTH	a=MDY(4,18,2 012); x=MONTH(a);	x=4	a=MDY(9,3,60); y=MONTH(a);	y=9
TODAY	x=TODAY();	x=today's date	y=TODAY()-1;	y=yesterday's date
WEEKDAY	a=MDY(4,13,2 012); x=WEEKDAY(a);	x=6	a=MDY(4,18,2012); y=WEEKDAY(a);	y=4
YEAR	a=MDY(4,13,2 012); x=YEAR(a);	x=2012	a=MDY(1,1,1960); y=YEAR(a);	y=1960