

Reference

Alphanumeric

In this reference guide, you will learn how to use the following AutoLISP functions to World Class standards:

- Function:** The actual AutoLISP symbol
- Name:** Function name
- Description:** Short narrative of the function
- Example:** Some examples that we can type at the command line in AutoCAD to experiment with the function

Math Symbols

Function	Name	Description
+	Adding	The addition function will add two or more numbers
Examples		
Using integers	(+ 4 3)	Answers 7
Using decimals	(+ 5.5 3.2)	Answers 8.7
Using negatives	(+ 154 -123)	Answers 31

Function	Name	Description
-	Subtracting	The subtraction function will subtract two or more numbers
Examples		
Using integers	(- 4 3)	Answers 1
Using decimals	(- 5.5 3.2)	Answers 2.3
Using negatives	(- 154 -123)	Answers 277

Function	Name	Description
*	Multiplying	The multiplication function will multiply two or more numbers
Examples		
Using integers	(* 4 3)	Answers 12
Using decimals	(* 5.5 3.2)	Answers 17.6
Using negatives	(* 154 -123)	Answers -18942

Function	Name	Description
/	Dividing	The division function will divide the first number by the second number
Examples		
Using integers	(* 4 3)	Answers 12
Using decimals	(* 5.5 3.2)	Answers 17.6
Using negatives	(* 154 -123)	Answers -18942

Logical Symbols

Function	Name	Description
>	Greater Than	Logical test determining whether the first value is greater than the second value
Examples		
Using integers	(> 8 6)	Answer: T (true)
Using decimals	(> 5.5 4.5)	Answer: T (true)
Using text strings	(setq q1 7) (> q1 5)	Answer: T (true)
Using text strings	(setq q1 7) (> q1 8)	Answer: F (false)

Function	Name	Description
>=	Greater Than Or Equal To	Logical test determining whether the first value is greater or equal than the second value
Examples		
Using integers	(>= 8 6)	Answer: T (true)
Using decimals	(>= 5.5 5.5)	Answer: T (true)
Using text strings	(setq q1 7) (>= q1 7)	Answer: T (true)
Using text strings	(setq q1 7) (>= q1 8)	Answer: F (false)

Function	Name	Description
<	Less Than	Logical test determining whether the first value is less than the second value
Examples		
Using integers	(< 6 8)	Answer: T (true)
Using decimals	(< 4.5 5.5)	Answer: T (true)
Using text strings	(setq q1 7) (< q1 8)	Answer: T (true)
Using text strings	(setq q1 7) (< q1 5)	Answer: F (false)

Function	Name	Description
<=	Less Than Or Equal To	Logical test determining whether the first value is less than or equal the second value
Examples		
Using integers	(<= 6 8)	Answer: T (true)
Using decimals	(<= 5.5 5.5)	Answer: T (true)
Using text strings	(setq q1 7) (<= q1 7)	Answer: T (true)
Using text strings	(setq q1 7) (<= q1 5)	Answer: F (false)

Function	Name	Description
=	Equal To	Logical test determining whether the first value is equal to the second value
Examples		
Using integers	(= 8 8)	Answer: T (true)
Using decimals	(= 4.5 4.5)	Answer: T (true)
Using text strings	(setq q1 "y") (= q1 "y")	Answer: T (true)
Using text strings	(setq q1 "n") (= q1 "y")	Answer: F (false)

Function	Name	Description
/=	Not Equal To	Logical test determining whether the first value is equal to the second value
Examples		
Using integers	(/= 7 8)	Answer: T (true)
Using decimals	(/= 4.5 4.5)	Answer: T (true)
Using text strings	(setq q1 "n") (/= q1 "y")	Answer: T (true)
Using text strings	(setq q1 "y") (/= q1 "y")	Answer: F (false)

Numbers

Function	Name	Description
1+	Increment	The increment function will add one to number
Examples		
Using integers	(1+ 4)	Answer 5
Using decimals	(1+ 5.5)	Answers 6.5
Using negatives	(1+ -154)	Answers -153

Function	Name	Description
1-	One Minus	The one minus function will subtract one from number
Examples		
Using integers	(1- 4)	Answer 3
Using decimals	(1- 5.5)	Answers 4.5
Using negatives	(1- -154)	Answers -155

A

Function	Name	Description
abs	Absolute Value	The absolute value function will return the positive value of a number
Examples		
Using integers	(abs 4)	Answers 4
Using decimals	(abs 5.5)	Answers 5.5
Using negatives	(abs -154)	Answers 154

Function	Name	Description
alert	AutoCAD Message	The alert function will create an AutoCAD message window appear on the graphical display with an OK button to close the message window.
Examples		
At the beginning of the program	(alert "notemaker.lsp - copyright 1999 by charles w. robbins. type nm to start")	Window appears on the graphical display
As an error prompt	(alert "Error: Type units in inches")	Window appears on the graphical display

Function	Name	Description
angle	Angle	Returns the angle of a virtual line drawn by two points in radians
Examples		
Angle between two points	(setq p1 (list 1.0 1.0 0.0)) (setq p2 (list 2.0 1.0 0.0)) (setq ang (angle p1 p2))	Answer: 0.0
Angle between two points	(setq p3 (list 1.0 1.0 0.0)) (setq p4 (list 1.0 2.0 0.0)) (setq ang (angle p3 p4))	Answer: 1.57

Function	Name	Description
assoc	Association	Looks in the data list for an entity and returns the individual data string matching the group code
Examples		
Searches the entire data list for "text" and returns the list with group code 1, text string	(setq oldtext (assoc 1 entitylist))	Answer: (1 . "Text")
Searches the entire data list for "text" and returns the list with group code 10, insertion point	(setq ip (assoc 10 entitylist))	Answer: (10 12.6265 30.8991 0.0)
Searches the entire data list for "text" and returns the list with group code 12. Returns nil if there is none found.	(setq ip (assoc 12 entitylist))	Answer: nil

Function	Name	Description
atan	Arctangent	The arctangent function will return an angle in radians where the first number is the opposite side and the second number is the adjacent side of a right triangle
Examples		
Using integers	(atan 4 8)	Answer 0.463648
Using decimals	(atan 5.5 3.7)	Answer 0.97861
Using negatives	(atan -154 -2)	Answer -1.58378

Function	Name	Description
atof	A Text String to an Real Number	Will convert a text string to an real number
Examples		
Change "16" to 16.0	(atof "16")	Answer: 16.0
Change "24" to 24.0	(atof "24")	Answer: 24.0
Change the text string in variable fw to 16.0	(setq fw "16") (atof fw)	Answer: 16.0

Function	Name	Description
atoi	A Text String to an Integer	Will convert a text string to an integer
Examples		
Change "16" to 16	(atoi "16")	Answer: 16
Change "24" to 24	(atoi "24")	Answer: 24
Change the text string in variable fw to 16	(setq fw "16") (atoi fw)	Answer: 16

B

C

Function	Name	Description
car	X Ordinate Stripper	Returns the X ordinate from a point list
Examples		
Removing the X ordinate	<code>(setq p1 (list 1.0 2.0 0.0)) (setq x1 (car sp))</code>	Answer 1.0

Function	Name	Description
cadr	Y Ordinate Stripper	Returns the Y ordinate from a point list
Examples		
Removing the Y ordinate	<code>(setq p1 (list 1.0 2.0 0.0)) (setq x1 (cadr sp))</code>	Answer 2.0

Function	Name	Description
caddr	Z Ordinate Stripper	Returns the Z ordinate from a point list
Examples		
Removing the Z ordinate	<code>(setq p1 (list 1.0 1.0 0.0)) (setq x1 (caddr sp))</code>	Answer 0.0

Function	Name	Description
close	Close a File	Closes an external file
Examples		
Close the external file, chair.txt	<code>(close file1)</code>	Answer nil

Function	Name	Description
Command “Move”	Move Command	Will move an entity in an AutoCAD file based upon the displacement criteria
Examples		
Moving a single selection set or a single entity using relative coordinates	(command "move" ss1 "" "@" "@2,0")	Moves ss1 , 2 inches to the right
Moving multiple selection sets or two entities using relative coordinates	(command "move" ss1 ss2 "" "@" "@2,0")	Moves ss1 and ss2 , 2 inches to the right
Moving a single selection set or a single entity using a starting point pt1 as the base point and pt2 as the second point of displacement	(command "move" ss1 "" pt1 pt2)	Moves ss1 The same distance as from pt1 to pt2

Function	Name	Description
Command “Text”	Text Command	Will place text in an AutoCAD file based upon the insertion point, text height, rotation and text string.
Examples		
Type in each LISP expression	(setq sp (list 0 0 0)) (setq txtht 0.125) (command "text" sp txtht "0" "Notes: ")	Places the text Notes: at the drawing origin

Function	Name	Description
CONS	Construct	Creates a new list with the group code and data
Examples		
Create a new list with a group code and text	(setq newtext (cons 1 "hello"))	Answer: (1 . "hello")
Create a new list with a group code and text inside variable textstring	(setq textstring "new") (setq newtext (cons 1 textstring))	Answer: (1 . "new")
Create a new list with a group code and coordinate inside variable pt	(setq pt (list 2.0 3.5 0.0)) (setq newtext (cons 10 pt))	Answer: (10 2.0 3.5 0.0)

Function	Name	Description
COS	Cosine	The cosine function will return the length of the side adjacent to the angle of a right sided triangle when the hypotenuse is 1
Examples		
Using integers	(cos 2)	Answer -0.416147
Using decimals	(cos 0.5)	Answer 0.877583
Using negatives	(cos -0.2)	Answer 0.980067

D

Function	Name	Description
defun	Define Function	The define function leads off the beginning of the program
Examples		
Place a c: in front of the program, hello. Allows hello to be typed at the keyboard to execute the code	(defun c:hello (/) (print "Hi Ya All"))	Answer: C:HELLO Type: hello Returns: "Hi Ya All"
When the code is used inside another program, do not place the c: in front of the program name	(defun hello (/) (print "Hi Ya All"))	Answer: HELLO Type: (hello) Returns: "Hi Ya All"

Function	Name	Description
distance	Distance	Returns the 3D distance between two points
Examples		
Distance between two points	(setq p1 (list 1.0 1.0 0.0)) (setq p2 (list 2.0 1.0 0.0)) (setq dist (distance p1 p2))	Answer: 1.0

E

Function	Name	Description
entget	Get the Entity List	Returns the entity list of a single AutoCAD entity
Examples		
Pick a line drawn from 3,2 to 1,1	(setq entitylist (entget entityname))	
Answer:		
((-1 . <Entity name: 7ef60e98>) (0 . "LINE") (330 . <Entity name: 7ef60cf8>) (5 . "8B") (100 . "AcDbEntity") (67 . 0) (410 . "Model") (8 . "0") (370 . 30) (100 . "AcDbLine") (10 3.0 2.0 0.0) (11 1.0 1.0 0.0) (210 0.0 0.0 1.0))		

Function	Name	Description
expt	Exponent	The exponent function will raise the first number to the power of the second number
Examples		
Using integers	(expt 4 3)	Answers 64
Using decimals	(expt 5.5 0.2)	Answers 1.40628
Using negatives	(expt -2.0 4)	Answers 16.0

F

Function	Name	Description
fix	Fix	The fix function will return a whole number of a value by removing the number's decimal places
Examples		
Using integers	(fix 4)	Answer 4
Using decimals	(fix 5.5)	Answer 5
Using negatives	(fix -154.75)	Answer -154

Function	Name	Description
float	Float	The float function will change a whole number into a real number adding decimals to the number
Examples		
Using integers	(float 4)	Answer 4.0000
Using decimals	(float 5.5)	Answer 5.5000
Using negatives	(float -154)	Answer -154.0000

G

Function	Name	Description
gcd	Greatest Common Denominator	The greatest common denominator function will return the largest number that is a common multiple of two numbers
Examples		
Using integers	(gcd 4 8)	Answer 2
Using decimals	(gcd 5.5)	Decimals Not allowed
Using negatives	(gcd -154 -2)	Negatives Not allowed

Function	Name	Description
getint	Get an Integer	Allows the user to obtain an integer by allowing the user to type at the keyboard
Examples		
Asking a question	(setq coats (getint "\nHow many coats of enamel? "))	Answer: How many coats of enamel? Then type: 1 Returns: 1
Asking a question and inputting a real number	(setq coats (getint "\nHow many coats of enamel? "))	Answer: How many coats of enamel? Then type: 1.0 Returns: Requires an integer value and How many coats of enamel?
Asking a question and inputting an incorrect answer	(setq coats (getint "\nHow many coats of enamel? "))	Answer: How many coats of enamel? Then type: One Returns: Requires an integer value. and How many coats of enamel?

Function	Name	Description
getkeyword	Get a Key Word	Allows the user to obtain a keyword text string by allowing the user to type at the keyboard
Examples		
Responding the proper keyword	(setq q1 (getkeyword "\n do you want tolerances? [y n] "))	Answer: Do you want tolerances? Then type: y "y"
Not responding the proper keyword	(setq q1 (getkeyword "\n do you want tolerances? [y n] "))	Answer: Do you want tolerances? Then type: no Invalid option keyword and Repeats the initial question

Function	Name	Description
getpoint	Get a Point	Allows the user to obtain a point on the graphical display by selecting with a mouse
Examples		
Get a starting point	(setq sp (getpoint "\nPick starting point"))	Answer: Pick starting point Then select a point and the will return a list like: (30.471 28.4052 0.0)

Function	Name	Description
getreal	Get a Real Number	Allows the user to obtain a real number by allowing the user to type at the keyboard
Examples		
Get a number	<code>(setq txtht (getreal "\nWhat is the text height?"))</code>	Answer: What is the text height? Then type: 3.2 3.2
Ask for a number, user types a whole number and the reply is changed to a real number	<code>(setq txtht (getreal "\nWhat is the text height?"))</code>	Answer: What is the text height? Then type: 1 1.0
Ask for a number, user types a fraction and the reply is changed to a real number	<code>(setq txtht (getreal "\nWhat is the text height?"))</code>	Answer: What is the text height? Then type: 1/8 0.125

Function	Name	Description
getstring	Get a Text String	Allows the user to obtain a text string by allowing the user to type at the keyboard
Examples		
Looking for a single word response	<code>(setq matl (getstring "\nWhat is the material?"))</code>	Answer: What is the material? Then type: Aluminum "Aluminum"
What happens when two or more words are typed	<code>(setq matl (getstring "\nWhat is the material?"))</code>	Answer: What is the material? Then type: Stainless Steel "Stainless"
Fix the space bar problem with a T after getstring	<code>(setq matl (getstring T "\nWhat is the material?"))</code>	Answer: What is the material? Then type: Stainless Steel "Stainless Steel"

Function	Name	Description
getvar	Get a variable	Allows the user to obtain a system variable setting from an AutoCAD drawing
Examples		
Turn on the endpoint, midpoint, quadrant, intersection and perpendicular Object Snaps	(setq osm (getvar "osmode"))	Answer: 179
Get the AutoCAD version number	(setq osm (getvar "acadver"))	Answer: "16.2s (LMS Tech)"

H

I

Function	Name	Description
if	If Statement	The if function will execute the functions within the then section of the if expression when the logical test is true and within the else section of the if expression when the logical test is false
Example		
If statement with just a then section with a logical test equally true	<code>(setq q1 "y") (if (= q1 "y") (alert "Hello"))</code>	Answer: "Hello"
If statement with just a then section with a logical test equally false	<code>(setq q1 "n") (if (= q1 "y") (alert "Hello"))</code>	Answer: nil
If statement with a then and or else section with a logical test equally false	<code>(setq q1 "n") (if (= q1 "y") (alert "Hello") (alert "Good-bye"))</code>	Answer: "Good-bye"

Function	Name	Description
initget	Input Options for User Input Functions	Define the keywords for the getkword function
Example		
Allow the user to type yes (y) or no (n) at the keyboard	<code>(initget 1 "y n")</code>	Returns: nil
Allow the user to type 1, 2 or 3 at the keyboard	<code>(initget 1 "1 2 3")</code>	Returns: nil

Function	Name	Description
itoa	Integer to a String	Will convert a whole number (integer) to a text string
Example		
Change a integer represented by the variable filename to a text string	<code>(setq filename 1000) (itoa filename)</code>	Answer: "1000"
Change a integer 1000 to a text string "1000"	<code>(itoa 1000)</code>	Changes 1000 to "1000"

J

K

L

M

Function	Name	Description
max	Maximum	The maximum function will return the largest value from a group of numbers
Examples		
Using integers	(max 4 3 2 1 0)	Answer 4
Using decimals	(max 5.5 3.7 2.2 1.0 0.75)	Answers 5.5
Using negatives	(max -154 -223 -687)	Answers -154

Function	Name	Description
min	Minimum	The minimum function will return the smallest value from a group of numbers
Examples		
Using integers	(min 4 3 2 1 0)	Answer 0
Using decimals	(min 5.5 3.7 2.2 1.0 0.75)	Answers 0.75
Using negatives	(min -154 -223 -687)	Answers -687

Function	Name	Description
minusp	Minus Proof	The minus proof function will return T for true when the number is a negative
Examples		
Using integers	(minusp 4)	Answer nil
Using decimals	(minusp 5.5)	Answer nil
Using negatives	(minusp -154)	Answer T

N

Function	Name	Description
nth	Nth Position	Will return the nth element of a list
Examples		
Find the x ordinate for the point sp	(setq sp (list 3.0 2.0 0.0)) (nth sp 0)	Answer 3.0
Find the y ordinate for the point sp	(nth sp 1)	Answer 2.0
Find the z ordinate for the point sp	(nth sp 2)	Answer 0.0

O

Function	Name	Description
open	Open File	Will open an external file to write, read or append data to
Examples		
Open a new file to write data to	<code>(setq file1 (open "chair.txt" "w"))</code>	Answer #<file "chair.txt">
Open a file located in the root directory to read data from	<code>(setq file1 (open "c:\\chair.txt" "r"))</code>	Answer #<file "chair.txt">
Open a file located in the student folder to append data to	<code>(setq file1 (open "c:\\student\\chair.txt" "r"))</code>	Answer #<file "chair.txt">

P

Function	Name	Description
princ	Princ Function	Will allow the program to run without printing the last line of the code to the command line
Example		
Typing an expression at the command line without the princ function	<code>(setq a "Hello")</code>	Answer: "Hello"
Typing an expression at the command line without the princ function	<code>(setq a "Hello")(princ)</code>	Answer: nothing

Function	Name	Description
print	Print Function	Will print a text string to the command line
Example		
Print "Select text" at the command line	<code>(print "Select text")</code>	Answer: "Select text"
Print "Program Done" at the command line. If this is the last line of the routine, use the <code>(princ)</code> function	<code>(print "Program Done")(princ)</code>	Answer: "Program Done"

Q

R

Function	Name	Description
read-line	Read line	Reads lines of data from an open external file
Examples		
Starts to read the external file, file1 and save the data to the variable info.	(setq info (read-line file1))	Answer: Will return the first text string in the file
Starts to read the external file, file1 and save the data to the variable drawingname.	(setq drawingname (read-line file1))	Answer: Will return the second text string in the file

Function	Name	Description
rem	Remainder	The remainder function will return a number displaying the remainder after the second number is divided into the first number
Examples		
Using integers	(rem 4 2)	Answer 0
Using decimals	(rem 5.5 2.0)	Answer 1.5
Using negatives	(rem -154 -2)	Answer 0

Function	Name	Description
rtos	Real Number to a String	Will convert a real number to a text string
Example		
Change a real number represented by the variable filename to a text string	(setq filename 1000) (rtos filename)	Answer: "1000.0000"
Change a integer 1000 to a text string "1000"	(rtos 1000)	Changes 1000.0000 to "1000.0000"

S

Function	Name	Description
c:saveimg	Save Image	Will create a graphical image file of the graphical display
Example		
Makes a Bitmap image of the graphical display	(c:saveimg (itoa filename) "bmp")	Returns SAVEIMG Save Image done!
Makes a Bitmap image of the graphical display	(c:saveimg (itoa filename) "tga")	Returns SAVEIMG Save Image done!
Makes a Bitmap image of the graphical display	(c:saveimg (itoa filename) "tiff")	Returns SAVEIMG Save Image done!

Function	Name	Description
setvar	Get a variable	Allows the user to obtain a system variable setting from an AutoCAD drawing
Examples		
Turn off the Object Snaps	(setvar "osmode" 0)	Answer: 0

Function	Name	Description
setq	Set Quotient	Allows the user to assign a real number, integer, string or list to a variable
Examples		
Set the variable a the text string World Class CAD	(setq a "World Class CAD")	Answer: "World Class CAD"
Set the variable counter the integer 0	(setq counter 0)	Answer: 0
Set the text height variable txtht the real number 0.125	(setq txtht 0.125)	Answer: 0.1250
Set the point variable sp the list of 0,0,0	(setq sp (list 0.0 0.0 0.0))	Answer: (0,0,0)

Function	Name	Description
sin	Sine	The sine function will return the length of the side opposite the angle of a right sided triangle when the hypotenuse is 1
Examples		
Using integers	(sin 2)	Answer 0.909297
Using decimals	(sin 0.5)	Answer 0.479426
Using negatives	(sin -0.2)	Answer -0.198669

Function	Name	Description
sslength	Selection Set Length	Returns the number of entities in a selection set
Examples		
After using the ssget function	(setq quantity (sslength ss1))	Answers: 1

Function	Name	Description
ssname	Selection Set Name	Returns the AutoCAD entity number of 8 characters
Examples		
After using the ssname function	(setq entityname (ssname ss1 0))	Answers: <Entity name: 4006ad98>

Function	Name	Description
sqrt	Square Root	The square root function will find the root of the square represented a number
Examples		
Using integers	(sqrt 4)	Answers 2.0
Using decimals	(sqrt 5.5)	Answers 2.34521
Using negatives	(sqrt -154)	Negatives Not Allowed

Function	Name	Description
ssget	Obtain a Selection Set	Allows the user to create a selection set by picking entities on the graphical display
Examples		
For picking with a mouse	(setq ss1 (ssget))	Selection Set: 7
Last entity drawn	(setq ss1 (ssget "L"))	Selection Set: 9
Select the last entity selected	(setq ss1 (ssget "P"))	Selection Set: 10
Selects all the entities	(setq ss1 (ssget "A"))	Selection Set: 3

Function	Name	Description
ssget "x"	Obtain a Selection Set Using a Filter	Will automatically select entities using a filter such as layer name, entity type like circle
Examples		
Using layers	(ssget "x" '(8 . "ball"))	Selection Set: 7
Using entity	(ssget "x" '(0 . "circle"))	Selection Set: 9

Function	Name	Description
strcase	String Case	Changes the case of any text string
Examples		
Change to upper case text	(strcase "hello")	Answer: "HELLO"
Change to lower case text	(strcase "HELLO" T)	Answer: "hello"

Function	Name	Description
strcat	String Concatenation	Concatenates or brings together two or more text strings
Examples		
Bringing three text string together, one which is the space	(strcat "Good" " " "morning")	Answer: "Good morning"
Bringing five text string together, two which is the space	(strcat "How" " " "are" " " "you?")	Answer: "How are you?"

Function	Name	Description
strlen	String Length	Returns the length of the text string as an integer
Examples		
For the word "CAD", each letter is counted in the string length	(setq a "CAD") (strlen a)	Answer: 3
For the phrase "computer design", the space is counted in the string length	(setq a "Computer Design") (strlen a)	Answer: 15

Function	Name	Description
substr	Sub String	Extracts a part of a text string
Examples		
Extract the first word from the sentence "the window is open"	(setq a "the window is open") (substr a 1 3)	Answer: "the"
Extract the second word from the sentence "the window is open"	(setq a "the window is open") (substr a 5 6)	Answer: "window"
Extract the last part of the sentence "the window is open"	(setq a "the window is open") (substr a 5)	Answer: "window is open"

Function	Name	Description
Subst	Substitute	Replaces an old list with a new list in the AutoCAD entity data list
Examples		
Replaces the old list with the new list in the entity data list	(setq entitylist (subst newtext oldtext entitylist))	
Answer:		
((-1 . <Entity name: 7ef60e98>) (0 . "MTEXT") (330 . <Entity name: 7ef60cf8>) (5 . "8B") (100 . "AcDbEntity") (67 . 0) (410 . "Model") (8 . "0") (100 . "AcDbMText") (10 8.64868 13.9756 0.0) (40 . 0.2) (41 . 6.75825) (71 . 1) (72 . 5) (10 2.0 3.5 0.0) (7 . "Standard") (210 0.0 0.0 1.0) (11 1.0 0.0 0.0) (42 . 0.733333) (43 . 0.2) (50 . 0.0) (73 . 1) (44 . 1.0))		

T

U

V

W

Function	Name	Description
While	While Loop	Will automatically select entities using a filter such as layer name, entity type like circle
Examples		
Using a counter	(while (< counter 5))	Will continue 5 times
Using a question	(while (= ball "y"))	Will continue as long as ball equals "yes"

Function	Name	Description
Write-line	Write line	Write a text string to an open external file
Examples		
Write the word "hello" to the open external file, file1	(write-line "Hello" file1)	Answer "Hello"
Write the text string contained in the variable drawingname to the open external file, file1	(setq drawingname "Box") (write -line drawingname file1)	Answer "Box"
Convert the real number in variable distx and write the string to the open external file, file1	(setq distx 1.5) (write -line (rtos distx) file1)	Answer "1.5"

X

Y

Z

Function	Name	Description
zerop	Zero Proof	The zero proof function will return T for true when the number is zero
Examples		
Using integers	(zerop 0)	Answer T
Using decimals	(zerop 5.5)	Answer nil
Using negatives	(zerop -154)	Answer nil