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# What is Logo?

Logo is a simple computer language which allows computers to be accessible to very young children, while appealing to older users as well. It was designed by Seymour Papert, a Massachusetts Institute of Technology professor in the late 1960s. Papert was a firm believer that children shouldn't be taught as much as they should learn how to learn. Logo allows users to combine simple, English-like commands, to draw shapes and pictures on the screen.

Weresoft Logo version 1.1 for Windows is a subset of the Logo language. It supports most of the basic drawing commands, a repeat command and simple formulas. Procedures (or sub routines) are not supported, but look for them in a future version.

see also:

[How to use Logo](#)

# How to use Logo

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## Index of commands

back (bk)	make the turtle walk backward so many steps. Use with one number. <b>Example:</b> <i>back 200</i> will make the turtle walk backward 200 steps
clean	clear all of the lines from the window, but leave the turtle in the same place
clearscreen (cs)	clear all the lines from the window and move the turtle to the <u>home position</u>
forward (fw)	make the turtle walk forward so many steps. Use with one number. <b>Example:</b> <i>forward 200</i> will make the turtle walk forward 200 steps
hideturtle (ht)	make the turtle disappear. Commands like forward and backward will still draw lines.
home	move the turtle to the <u>home position</u> . <b>Note: if the pen is down, the turtle will draw a line to the home position when this command is given</b>
left (lt)	turn the turtle to the left by so many degrees. Use with one number. <b>Example:</b> <i>left 45</i> will make the turtle turn 45° to the left
pendown (pd)	tell the turtle to start drawing. When the pen is down the turtle will leave a line behind wherever it goes. The turtle will keep drawing until it is given a <u>penup</u> command. The pen is down when you start.
penup (pu)	tell the turtle to stop drawing. When the pen is up, the turtle can move without leaving a line behind. The pen will stay up until a <u>pendown</u> command is given.
repeat	see <u>Repeat</u>
right (rt)	turn the turtle to the right by so many degrees. Use with one number. <b>Example:</b> <i>right 45</i> will make the turtle turn 45° to the right
setheading (seth)	make the turtle turn to face a certain direction. 0° is due 'east', 90° is due 'north', etc. Use with one number. <b>Example:</b> <i>setheading 135</i> will make the turtle turn so that it is facing 'north west'
showturtle (st)	makes the turtle re-appear, if it was hidden with <u>hideturtle</u> .

# Version history and upgrading

July 24, 1993           Version 1.0 released.

September 13, 1993   Version 1.1 released.

- improved command and formula processing. It is no longer necessary to surround formulas with parantheses. The program now detects errors such as division by zero and math overflow.

Several updates can be expected in the near future. Weresoft Logo is by no means complete. There are many features which I wish to include in future updates. These include (in no particular order):

- the capability to save the drawing area to a Windows Metafile (.WMF) file
- an option to print out the drawing area
- scrollbars on the drawing area, for when the turtle leave the window
- a command to clear the text area, or even hide it.
- background processing of repeat commands
- the ability to cancel a drawing in progress
- access to internal and user defined variables
- procedures (or subroutines) which allow the user to define new commands
- a “print” command to print text to the editing area
- a command history (like CED, DOSkey, 4DOS or NDOS)
- OLE (are there people out there who actually use OLE?)
- a teachers’ guide in the form of a help file
- a bibliography of useful references in a help file
- support for more commands, especially some to control the size, shape and colour of the pen
- better turtle: faster drawing and a direction indicator of some type. Maybe even a turtle who looks like a turtle!

Registered users will be notified of, and receive free of charge, all updates and bug fixes to Weresoft Logo for Windows. To learn how to register, see [How to register](#)

## How to register

Weresoft Logo for Windows has been released as a shareware product. Please help support the shareware concept.

By distributing Weresoft Logo for Windows this way, you, the user, are given a chance to use the product for a trial period. If you find that you don't like the product, or that it is of no use to you, feel free to erase it. You will have lost nothing (other than a great piece of software).

If however you find Weresoft Logo for Windows useful, you are expected to register your copy with the author. Weresoft Logo is not cripple-ware. The shareware version is fully functional. Nor are there annoying nag screens. The author relies solely on your honesty to receive reimbursement for his work.

When you register, you will receive an official Weresoft Logo for Windows distribution disk with a handsome label. You will also be entitled to receive free upgrades and bug fixes for the lifetime of the author. You will be given my phone number and a lifetime of technical support. I've still got a good seventy years left, so that's a good deal. Also, when it becomes available, registered users will be sent a printed manual. Most importantly, registered users can rest with a good conscience.

Whether you decide to register or not, please pass on Weresoft Logo for Windows to a friend or upload it to local bulletin boards. Make sure to include the files WSLOGO.EXE and WSLOGO.HLP. If possible, also include FILE\_ID.DIZ. If you are uploading to a BBS please try to call the file WSLOGO11.ZIP or WSLOGO11.ARJ, etc.

To register, send a letter praising the product and a cheque or money order for \$20.00 (US or Canadian) to:

Peter Burka  
York Point Road,  
RR # 4, Cornwall,  
Prince Edward Island  
C0A 1H0  
CANADA

Don't forget to include your address, the name and version of the product you are registering, and whether you want a 3½" or 5¼" disk.

Please note that the \$20.00 registration fee is only valid until September 13, 1994. If you wish to register after this date:

- find a newer version on a BBS with the new registration fees, or
- send me the \$20.00 anyway. I'll send you a bill for the difference, or
- write to me, asking what the new fee is.

**home position**

The home position is the centre of the window, with the turtle pointing 'north' (towards the top of the screen.) This is where the turtle is when Logo starts.



# Repeat

Makes the turtle repeat a list of commands a certain number of times. This command is useful for drawing polygons, stars, and other regular shapes.

**Example:** *repeat 4 [forward 100 right 90]* will draw a square.

In this case, the turtle repeats the commands inside the square brackets [forward 100 right 90] four times.

**You must tell the turtle how many times to repeat. The commands to repeat must have a bracket on each end.**

**wrong:** *repeat [forward 100 right 90]*

(the turtle doesn't know how many times to [forward 100 right 90])

**wrong:** *repeat 4*

(the turtle doesn't know what to do four times)

**wrong:** *repeat 4 [forward 100 right 90*

(the closing bracket ']' is missing)

One repeat command may have another repeat command inside, as long as there is the right number of square brackets.

**correct:** *repeat 8 [forward 20 repeat 12 [forward 10 left 30] forward 20 right 45]*

**Hint: A repeat command with a large repeat factor (i.e. *repeat 180 [fw 1 rt 2]*) can take a long time to draw. To speed up the drawing, give a hideturtle command before the repeat command, and a showturtle after.**

see also:

[Index of commands](#)

[Using formulas](#)

## Entering commands

To enter a command, simply type it in from the keyboard and press enter.

Some commands (like forward, right and repeat) require that other information be entered after the command. **There must be a space between the command and the information, and between two pieces of information.**

**Wrong:** *forward100* (no space)

**Correct:** *forward 100*

For more information on using numbers and formulas, see:

[Using formulas](#)

# Understanding the turtle

When you start Weresoft Logo, a small triangle appears in the drawing area. This is called the turtle, and the drawing area is its sand box.

The turtle is a simple 'animal' which understands a small number of commands. By entering commands, you can instruct the turtle to draw simple shapes in its sand box. You can tell the turtle to walk in a straight line, to turn any direction, to start or stop drawing or to start over. The turtle also knows how to repeat the commands you give it. By using combinations of these simple commands, the turtle can draw complicated shaped and drawings.

For a complete list of the commands the turtle understands, see the [Index of Commands](#).

## Using formulas

Wherever a number is required, a formula may be used in its place.

The symbols which Logo understands are (in order of precedence):

()	parentheses
	absolute value
^	exponent
*	multiplication
/	division
+	addition
-	subtraction

The symbols are processed using mathematical laws. So multiplication and division are calculated before addition and subtraction, exponents before multiplication and division, and numbers inside parentheses before anything else.

A square root operator is not yet supported, but square roots can be found by using:

$x^{(1/2)}$  to find the square root of  $x$ .

**Note: it is no longer necessary to enclose formulas in parantheses.**

Spaces around numbers and symbols are ignored.

### Examples:

*forward 20 + 30* moves the turtle forward 50 steps.

*right 15 + 3 \* 10* turns the turtle right 45° (multiplication before addition)

*right (15 + 3) \* 10* turns the turtle right 180° (parantheses first)

*back 100 + 50* results in an error (no enclosing parantheses)

*repeat 9 [forward 100 right 360/9]* draws a regular, nine-sided polygon

*forward |-34|* moves the turtle forward 34 steps.

*forward -34* moves the turtle backward 34 steps.

## Weresoft

pronounced ware - soft. Like werewolf, or software.



