Math

arc_measure
Returns degrees between start and end angles

-130°
-148°
18°

arccos
Given value between -1 and 1 returns arccosine in radians or degrees

-½
120°
arccos(-½)

area
Returns area of a closed polygon

E
10000.0
24780.993461608887

attractor
Computes minimum distance and angle from points to a shape

average
Given a list of numbers returns mean, median, mode(s), or mid-range

Index	trial	heads
0	7	3
1	4	3
2	11	5
3	2	5
4	9	5
5	10	5
6	0	0
7	3	6
8	6	6
9	8	7
10	1	4
11	5	8

Mean: 5.33
Median: 5.5
Mode(s): 5,6
Mid-range: 5.0

bounds
Constrain values within upper and/or lower bounds

easing
Applies selected easing function to produce changing values over time

find_radius
Finds radius of a polygon with a given side length

percentage
Returns percentage as number or formatted string

24.05%
33.32%
38.52%
55.04%
59.75%
63.74%
73.10%

precision
Rounds a floating point number to a given precision

3
3.1
3.14
3.142
3.1416
3.14159

primes
Generates a list of prime numbers up to a given limit

running_start
A running total that starts with the first value

value	running total
73	73
24	97
64	161
55	216
60	276
33	309
39	348
98	446

secs
Returns clock time in seconds since last call; use trigger to measure elapsed time - REQUIRES TIME.PY

Seconds needed to draw a polygon with one million sides: 1.594

tangent
Returns precise tangent angle at any position (0 to 100) along a path

this_or_that
If which is 0 choose this, if which is 1 choose that

470.65
(176.38)
923.58
82.95
698.37

Geometry

apply_color
Colorize a shape based on the properties of a reference object

arrange
Arrange objects in tidy stacks

arrow
Draws an arrow with many style options

backdrop
Add a colored backdrop behind content

Title
Title

balloons
Draws a bunch of balloons, colored randomly if no colors are supplied

canvas
Returns a white rectangle with width and height of current canvas - REQUIRES CANVAS.PY

clean
Removes duplicate consecutive points in a path - fixes some artifacts in PNG exports

before
after

clip
Clips to boundary replacing fill and stroke colorization

contours
Separates path into distinct contours

curve
Draws quadratic curve with two control points

diamonds
Creates a grid of diamonds

donut
Creates a donut, pie, or stacked bar chart

even_sample
Distribute points evenly across entire path, curves only, or points only

resample
even_sample

explode
Explodes path into individual lines and curves

fade
Adjust alpha (0 to 100) of shapes or geometries

fit_curve
Finds a curve that passes through all points in a path

fragments
Returns shapes arising in the spaces between overlapping shapes

gear
Create an adjustable, working gear

hexagons
Create a grid of hexagons

image
Opens an image file and returns sample or masked pixelmap as a pixel group - REQUIRES IMAGE.PY

Dimensions: 220.0 x 220.0
Pixels: 38,032
Pixel size: 1.0

join
Join a list of paths into a single seamless path

Length: 1.0
Length: 1058.60

join_contours
Join contours into a single path - REQUIRES CONTOURS.PY

kern
Creates a kerned text path

Character and word spacing

mask
Returns segments of path inside or outside mask

metaballs
Returns shapes arising from unions of overlapping shapes

node_card
Creates specification card for each NodeBox node - REQUIRES NODELIST.PY

parabola
Creates parabolic curve for y = Ax^2 + Bx + C for x between X1 and X2

Ax² + Bx + C

reshape
Gradually reshape one polyline path into another

rev_dir
Reverse direction of a complex path

scale_true
Resize both shape and stroke/width

seg_display
Display numbers and hex values on a seven segment display

shutter
Creates a dynamic camera shutter

soften
Soften the corners of a path

spiral
Draws different types of spirals

stack_tight
Arrange shapes tightly together in horizontal or vertical stacks

stacktight

text_svg
Creates a kerned single line text path based on SVG fonts - REQUIRES hersheyFont.svg

This label uses the Hershey font for plotting
This label uses the Relief font for plotting
Abc

trace
Traces outline of a closed path

trajectory
Create a trajectory curve for a projectile with given angle, velocity, height, and gravity

treemap
Given list of values and bounding rect, returns a treemap or position of rect - REQUIRES TREEMAP.PY

triangle
Create a triangle by supplying three values, including at least one side

C = 44.09°
200
246.41
A = 59°
200
B = 76.91°

true_arc
Creates an directionally correct arc path for text to follow

text above horizon flows clockwise
text below horizon flows counter-clockwise

true_spoke
Correctly text direction for text on a spoke path

turtle_drive
Move a pointer around a polyline path

unwind
Unwind a polyline path into a line or segmented curve

wind_letters
Winds letters around a spiral

write_table
When triggered writes table to csv file and returns "file saved" - REQUIRES WRITE_TABLE.PY

FRUIT	COLOR
apple	red
orange	orange
banana	yellow

"file saved"

Points

alt_grid
Create grid with options for alternating indents and zigzagging

corner
Returns a corner or midpoint in the boundary of a shape

grid_plus
Create a grid of points sized by cell width and height with options for a brink and different orders

1 2 3 4
5 6 7 8
9 10 11

intersect
Finds intersections between a line and a path

path

intrsct_circle
Finds intersections between a line and an ellipse

intrsct_curve
Finds intersections between a line and a cubic bezier curve

intrsct_line
Finds intersection between two lines

order_LRTB
Order points or shapes left to right, top to bottom

Sort X + Sort Y
Order_LRTB

outer_points
Returns the points which form a boundary enclosing the rest - REQUIRES CONVEX_HULL.PY

point_in_path
Calculate a point between beginning and end of a path

rel_change
Given start point A and end point B returns B-A, the point needed to translate A to B

Lists

diff_list
Given lists A and B, returns items in A but not B, B but not A, or in both

List A	List B	A not B
apples	apples	oranges
oranges	kiwis	
kiwis	carrots	B not A
carrots	grapefruit	grapefruit
apples	bananas	bananas

A and B
apples
kiwis
carrots

drop_last
Take all but the last item of a list

1 2 3 4
5

find_item
Returns all indices where target occurs in a source list

red
blue
green
blue
yellow

find_substr
Returns all indices of target substring within source string

That is a bold assertion!

indices
Returns a list of indices to enumerate items in the input list

1 2 3 4 5 6 7

list_files
Given folder path returns top level files in that folder - REQUIRES LIST_DIR.PY

python files	code lines
concat_list.py	8
make_curve.py	9
docstr.py	10
font_table.py	11
contours.py	13
time.py	14
canvas.py	17
write_table.py	32
list_dir.py	49
convex_hull.py	50
convert_base.py	51
nodelist.py	79
treemap.py	102
image.py	107
poisson.py	139

list_folders
Given folder path returns top level subfolders - REQUIRES LIST_DIR.PY

FOLDERS
.DS_Store
test-empty-folder
Node.Library.Documentation
empty-folder
Create_Table

FILES
Old Library/node library 1.1 monitor.rtfd
Old Library/node library 2.0.rtfd
Old Library/node library 2.1.rtfd
Old Library/node library 2.5.rtfd
Old Library/node library 1.0.rtfd
Old Library/node library 2.2.rtfd
Pedestal and Screenshots/Screen Shot 2021-07-07 at 11.41.35 AM.png
Pedestal and Screenshots/Node Library 3.0 Poster.pdf
Pedestal and Screenshots/Screen Shot 2021-07-07 at 11.41.45 AM.png
Pedestal and Screenshots/Node Library 3.0 Screenshot.png
Pedestal and Screenshots/Node Library 2.2 Poster.png
Pedestal and Screenshots/Node Library 2.2 Poster.pdf
Pedestal and Screenshots/Node Library 2.2 Pedestal Screenshot.png
Pedestal and Screenshots/Node Library 2.2.pdf
Pedestal and Screenshots/Node Library 2.2.pdf
Pedestal and Screenshots/Node Library 3.0 poster.pdf
Pedestal and Screenshots/Node Library 3.0 poster.pdf
Pedestal and Screenshots/Node Library 3.0 poster.pdf

time
Returns local date, time, and day as hat - REQUIRES TIME.PY

TUE
NOV 22

Data

change_col
Replace a column with modified data or add new one

country	month	average sales
India	January	917.87
India	February	516.48
India	March	775.35
Brazil	January	795.30
Brazil	February	837.79
Brazil	March	598.89

country	month	sales
India	January	918
India	February	516
India	March	876
Brazil	January	795
Brazil	February	838
Brazil	March	600

diff_table
Given tables A and B, returns rows with items in A but not B, B but not A, or both A and B

Fruit: apples, oranges, kiwis, carrots
Fruit: apples, kiwis, carrots, grapefruit, bananas
Fruit: oranges
Fruit: grapefruit, bananas
Fruit: apples, kiwis, carrots

distribution
Makes distribution table from a source table, key, and range of possible values

heads	total
0	2
1	9
2	47
3	114
4	211
5	224
6	228
7	117
8	36
9	10
10	2

drop_cols
Drop or keep a subset of columns

country	month	apples	oranges	bananas
India	January	334	349	53
India	February	216	300	136
India	March	295	215	127
Brazil	January	176	134	95
Brazil	February	147	78	60
Brazil	March	90	152	17

country	month	bananas
India	January	53
India	February	136
India	March	127
Brazil	January	95
Brazil	February	60
Brazil	March	17

font_table
Returns a table of system fonts - REQUIRES FONT_TABLE.PY

family	name
.AppleSystemUIFont	.SFNS-Regular
.AppleSystemUIFont	.SFNS-Regular
Abadi MT Condensed Extra Bold	AbadiMTCondensedExtraBold
Abadi MT Condensed Light	AbadiMTCondensedLight
Academy Engraved LET	AcademyEngravedLetPlain
Adobe Caslon Pro	ACaslonPro-Bold
Adobe Caslon Pro	ACaslonPro-BoldItalic
Adobe Caslon Pro	ACaslonPro-Italic
Adobe Caslon Pro	ACaslonPro-Regular
Adobe Caslon Pro	ACaslonPro-Semibold
Adobe Caslon Pro	ACaslonPro-SemiboldItalic
Adobe Garamond Std	AdobeGaramondStd-Regular
Adobe Garamond Pro	AGaramondPro-Bold
Adobe Garamond Pro	AGaramondPro-BoldItalic
Adobe Garamond Pro	AGaramondPro-Italic
Adobe Garamond Pro	AGaramondPro-Regular
Adobe Heiti Std	AdobeHeitiStd-Regular
Adobe Kaiti Std	AdobeKaitiStd-Regular
Adobe Ming Std	AdobeMingStd-Light
Adobe Myungjo Std	AdobeMyungjoStd-Medium

Other

blend_color
Blend a translucent foreground with a solid background

clockwise
Returns true if points in a path are in clockwise order

x y z

colors
Returns a range of colors

concat_list
Concatenates a list of strings into a single string - REQUIRES CONCAT_LIST.PY

a ago all and and are brought conceived continent created dedicated equal fathers forth four in liberty men nation new onto our proposition score seven that the this to years

convert_base
Convert value from one base to another - REQUIRES CONVERT_BASE.PY

101010 --> 42
42 --> 2A
1be15dc --> hello

convert_date
Converts dates using Java SimpleDateFormat - REQUIRES DATEFORMAT.CLJ

Now: Tuesday, November 22 1:20:50 AM
Since 1/1/19: 1421d 01:20:50

dec_to_bin
Convert decimal to binary up to 32 bits

is_closed
Returns true if path is closed, paths with multiple contours treated as closed

false
true

merge_table
Merges two tables

animal	color	number
cat	red	0.0
dog	blue	1.0
penguin	green	2.0

weight	height
146.19	4.39
48.11	1.44
127.48	3.82

animal	color	number	weight	height
cat	red	0.0	146.19	4.39
dog	blue	1.0	48.11	1.44
penguin	green	2.0	127.48	3.82

sum_cols
Make summary table categorized by row with totals across multiple existing columns

Sales by Country

country	apples	oranges	bananas
Mexico	1,000	1,000	1,000
Mexico	1,000	1,000	1,000
Mexico	1,000	1,000	1,000