Math

angle_field
Create a field of angles

n_choose_k
Pascal's triangle

arc_measure
Measure angle between two points on a circle

noise
Generate fractal noise using Perlin or Simplex noise

arccos
Find the angle between x and y using arccosine (acos)

percentage
Format a number as a percentage

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

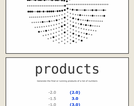
area
Find area of a rectangle

precision
Format a number to a given precision

3
3.1
3.14
3.142
3.1416
3.14159

attraction
Simulate Newtonian attraction between many points in a 2d space

primes
Generate a list of prime numbers



average
Find one of a number of kinds: mean, median, or mode, of a list of values

index	true	levels
0	0	0
1	1	1
2	1	2
3	1	3
4	0	4
5	1	5
6	1	6
7	0	7
8	1	8
9	1	9

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

products
Find products of pairs of numbers

-2.0	(2.0)
-1.5	3.0
-1.0	(3.0)
-0.5	1.5
0.0	1.5 zero ignored
0.5	0.75
1.0	0.75
1.5	1.125
2.0	2.25
2.5	5.625
3.0	16.875
3.5	59.0625
4.0	236.25

bounds
Calculate values within upper and/or lower bounds

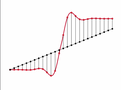
running_start
A running total that starts with the first value

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

Change

apply_ramp
Apply a ramp to a range of values in a given list

easing
Apply various easing functions to a range of values in a given list



fade
Make items fade in, out, or between

rearrange
Rearrange values in a given list in a given order

reshape
Reshape values into another form or pattern

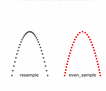
turtle_drive
Move around according to a given path

unwind
Unwind a packed list with one of a sequence of rules

Geometry

arc_wave
Create a wave of arcs

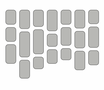
even_sample
Sample a number of points from a list, evenly spaced



join
Join multiple lists together

spiral
Create a spiral

arrange
Arrange values in a given pattern



explode
Explode values apart from their centroid

join_contours
Join contours into a single contour

stack_tight
Stack values tightly in a given direction

arrow
Make a line with an arrow

fancy_star
Create a fancy star

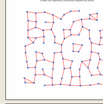
mask
Mask values in a given list with a mask list

sub_path
Return a subset of a path

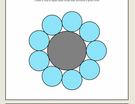
balloons
Pack circles together

find_arc
Find an arc that fits a given path

mesh
Create a mesh from a given list



surround
Create a shape that surrounds a given path



bound_box
Create a bounding box around an object

fit_curve
Fit a curve that passes through all points in a list

metaballs
Return shapes arising from centers of neighboring shapes

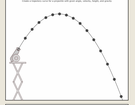
symbol
Create a font-based symbol

canvas
Return a white rectangle with width and height of a given values

fit_true
Fit a shape within bounds, preserving aspect ratio

occlude
Create shapes given the intersections of overlapping shapes

trajectory
Create a trajectory of a shape with velocity, angle, and gravity



clean
Remove duplicate consecutive points in a path. Also work artifacts in the square.

fragments
Return shapes arising from the spaces between overlapping shapes

overlaps
Return all possible intersections of overlapping shapes

treemap
Divide list of values and bounding box into a treemap of rectangles of areas

clip
Clip values to a given minimum and maximum

gear
Create a gear

parabola
Create a parabola with a given curve and span at its base

triangle
Create a triangle with a given base and height

contours
Return lines for values between

hexagons
Create a hexagon

push_pull
Push or pull a shape's points outward or inward

waveform
Create a waveform

curve
Create a curve

hilbert
Create a Hilbert curve

ramp_curve
Create a curve, as a ramp or a wave

dashed_line
Create a dashed line

image
Return an image file as a nested list of values (pixels) or a color string

rev_dir
Reverse direction of a shape's path

diamonds
Create a grid of diamonds

inscribe
Inscribe a shape centered inside another shape

scale_true
Resize both shapes and preserve

donut
Create a donut, pie, or bagel-like chart

iso_paper
Create square isometric grid paper

soften
Soften the corners of a path

Text

align_labels
Align a list of labels

align_nums
Align numbers by the decimal point

Q1	475,350.23
Q2	20,885.50
Q3	(110,336.75)
Q4	930,512.92
Total	1,316,411.90

draw_table
Draw a table of values

kern
Adjust character and word spacing

place_label
Place labels that don't overlap on a given image

poly_labels
Label the interior and edges of a polygon

seg_display
Display numbers and text values in a seven-segment display

style_text
Create a list of styled text values

text_circle
Create a text circle

text_svg
Create a text shape for a font loaded in SVG form

true_arc
Create an unsmoothed, precise arc path for laser cutters

true_spoke
Create a spoke centered on a given path

wind_letters
Wind letters around a spiral

Points

alt_grid
Create a grid of points by alternating two lists

order_LRTB
Sort points in order left-right, top-bottom

circle_circle
Find the circle that encloses two circles

outer_points
Return points on the outside of a shape

corner
Return the corners of a shape's box

point_in_path
Return points within a given path

distinct_pts
Return distinct points

rel_change
Find relative change between points in a list

good_center
Find a "good" center for a shape

scatter_bias
Generate a scatter of points with a bias

grid_plus
Create a grid of points with a plus and diagonal lines in it

scatter_even
Generate evenly spaced points in a rectangular area

intrsct_circle
Find intersections between a line and a circle

set_type
Create a point of type 1, 2, or 3

intrsct_curve
Find intersections between a line and a curve

true_center
Find the center of a shape's box or path

intrsct_line
Find intersections between two lines

intrsct_path
Find intersections between a line and a path

Lists

concat_list
Concatenate a list of lists

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

diff_list
Find differences between two lists of values

drop_last
Drop the last n values

1 2 3 4 5

find_item
Find the index of an item in a list

red
blue
green
blue
yellow

find_substr
Return the index of the first occurrence of a substring

That is a **bold** assertion!

indices
Return a list of values by thousand-based index or key values

list_files
Return a list of files in a directory, with filtering options

list_folders
Return a list of folders in a directory, with filtering options

mix
Mix two lists of values

this_or_that
Return this or that for a list of values

470.65
(176.38)
923.58
82.95
698.37

Data

change_col
Change the name of a column in a table

diff_table
Find differences between two tables of the same shape

distribution
Return the distribution of values in a list, as a list or as a chart

drop_cols
Drop a column or columns in a table

font_table
Return a table of system fonts

merge_table
Merge two tables

quadtree
Create a quadtree for a list of points

sum_cols
Sum columns in a table, or sum a table's columns

summarize
Summarize each column in a table with a function

transpose
Turn a list of lists from rows to columns

write_table
Write a list of lists to a file with a header row

Color

adjust_fill
Adjust the fill color of a shape

luma
Create a color's luma value

apply_color
Apply a color to a shape

luma_colors
Create a list of luma values for a list of colors

blend_color
Blend two colors

morph_color
Morph between two colors

change_color
Change a color's hue, saturation, or value

palette
Create a palette of colors

color_brewer
Create a color palette based on the ColorBrewer system

colors
Return a range of colors

complement
Create a complement of a color

contrast
Create a color with more or less contrast than a given color

hcl_color
Create a color in the HCL color space

inter_color
Return intermediate colors between two colors

Other

clockwise
Create a list of values in clockwise order

combos
Create combinations of values in a list of lists

convert_date
Convert a date from one format to another, or to a datetime object

Now: Friday, August 9 7:19:36 PM
Since 1/1/19: 20470 18:19:36

int_part
Return the integer part of a number

is_closed
Return true if path is closed, with shapes, and with holes

node_card
Create specification cards with node images, text, and shapes

orderings
Return a list of all orderings equal to range(n)

partitions
Create a list of all partitions of a list

Node Library 3.4

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