

ADDITIONAL CAS FUNCTIONS

Functions and graphs

two_points(x1,y1,x2,y2)

finds information of 2 points in a cartesian plane

`two_points(-2, 4, 2, 0)`

→ equation: $y=2-x$

→ midpoint: $(0, 2)$

→ length: $4\sqrt{2}$

stationary(f(x),x)

finds the stationary points of any function

`stationary($x^4 - 2x^2$, x)`

→ $\begin{bmatrix} x & -1 & 0 & 1 \\ y & -1 & 0 & -1 \end{bmatrix}$

Complex numbers

cis(x)

find rectangular form of a polar complex number

`cis($\frac{\pi}{6}$)`

→ $\frac{\sqrt{3}}{2} + \frac{1}{2}i$

to_polar(z)

convert rectangular complex number to polar

`to_polar($5 + 5\sqrt{3}i$)`

→ $10\text{cis}(\frac{\pi}{3})$

Geometry

circle_line(cx,cy,r,l)

finds the areas of parts of a circle intersected by a line

`circle_line(2,1,3,2x)`

→ pizza1: 9.96

→ pizza2: 18.31

→ triangle: 7.2

Vectors

mag(v)

finds the magnitude of a vector

`mag([3 4])`

→ 5

ang(v1, v2)

finds the angle between 2 vectors

`ang([1 0], [1 sqrt(3)])`

→ $\frac{\pi}{3}$

scalar_resolute(v1,v2)

finds the scalar resolute of 2 vectors

`scalar_resolute([1 2], [3 4])`

→ $\frac{11}{5}$

vector_resolute(v1,v2)

finds the vector resolute of 2 vectors

`vector_resolute([1 0], [2 1])`

→ $\begin{bmatrix} \frac{4}{5} & \frac{2}{5} \end{bmatrix}$