Package ‘spt’

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Title Sierpinski Pedal Triangle
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Description A collection of algorithms related to Sierpinski pedal triangle (SPT).
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chaos Chaos Games for Sierpinski (Pedal) Triangle

Description

To construct SPT/ST via Chaos games.

Usage

  chaos(abc,...)
Arguments

abc  An R object of class ‘st’ or ‘spt’.

Details

If ‘abc’ is an acute triangle or obtuse ‘st’ triangle, the algorithms works. For obtuse ‘spt’ triangle, we need think of something else to measure the dimension.

Value

Iteration number should be large (say 10000).

Author(s)

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References


Examples

(abc1 = st(50,60))
chaos(abc1, iter=2000)
(abc2 = spt(50,60))
chaos(abc2, iter=1000)

spt

Sierpinski Pedal Triangle

Description

To initial, plot and show a Sierpinski pedal triangles.

Usage

spt(A,B)

Arguments

A,B  The degrees of two of the three angles of a triangle.
Details
When the original triangle is an acute triangle, the area of the smallest SPT/PT to be drawn is determined by (tol * S), where S is the total area for plotting. No restriction is applied to iter.
If the original triangle is an obtuse triangle, the largest value of iter is 12.
tol: A stopping criteria to draw the sub-SPT. Default value 0.0001.

Value
The dimension of the SPT will be returned if the original triangle is an acute triangle.
The viewport of showing the SPT/ST "abc" can be changed by changing the value of abc$viewport.

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References

Examples

(abc = spt(50,60))
plot(abc, iter=7)

(abc = spt(50,10))
plot(abc, iter=3)
abc$viewport = c(0,-70,84,100)
plot(abc, iter=6)

Description
To initial, plot and show a Sierpinski triangles.

Usage
st(A,B)

Arguments
A,B The degrees of two of the three angles of a triangle.
Details

When the original triangle is an acute triangle, the area of the smallest ST to be drawn is determined by \((\text{tol} \times S)\), where \(S\) is the total area for plotting. No restriction is applied to \(\text{iter}\).

If the original triangle is an obtuse triangle, the largest value of \(\text{iter}\) is 12.

\text{tol}: A stopping criterion to draw the sub-SPT. Default value 0.0001.

Value

The dimension of the ST will be returned if the original triangle is an acute triangle.

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References


Examples

\[(abc = \text{st}(50, 60))\]
\[\text{plot(abc, iter=10)}\]
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