
Subject: Re: Fractal in IDL!

Posted by [d.poreh](#) on Thu, 29 Oct 2009 09:39:14 GMT

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On 28 Okt., 19:15, sathya <sathya.s...@gmail.com> wrote:

> Hi,
>
> I am trying to create a fractal set in IDL. I know that a Mandelbrot
> set follows the below mentioned function,i.e.
>
> $f(x) = x^2 - c$
>
> where, x - is a complex number, c - constant
> and the range for x-axis is [-1.5, 1.5].
>
> In a similar way, can anyone give me the function for anyother fractal
> or Koch snowflake. If I am not wrong, does it follow the given
> function?
>
> $a = (1/2) + (i/\text{SQRT}(12))$
>
> Thanks,
> Sathya!

Hi Sathya!

Could you please give us the code in IDL for first function ($x^2 - c$).
and show how we could do that?

Cheers

Subject: Re: Fractal in IDL!

Posted by [sathya](#) on Thu, 29 Oct 2009 09:58:23 GMT

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On Oct 29, 5:39 am, Dav_Poreh <d.po...@gmail.com> wrote:

> On 28 Okt., 19:15, sathya <sathya.s...@gmail.com> wrote:
>
>
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```

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>> or Koch snowflake. If I am not wrong, does it follow the given
>> function?
>
>> a = ( 1/2 ) + ( i/SQRT(12) )
>
>> Thanks,
>> Sathya!
>
> Hi Sathya!
> Could you please give us the code in IDL for first function (x^2-c).
> and show how we could do that?
> Cheers

```

Hi

here is the code!

```

pro frac, xRange, yRange, RESULT=res

;device, PSEUDO_COLOR=8, DECOMPOSED=0

if n_elements( xRange) eq 0 then xRange = [ -1.0, 2.3]
if n_elements( yRange) eq 0 then yRange = [ -1.3, 1.3]

iter = 255

xS = 640
yS = 512

xD = float(xRange[1]-xRange[0])
yD = float(yRange[1]-yRange[0])

xStep = xD / xS
yStep = yD / yS

xStartVec = lindgen( xS ) * xStep + xRange[0]
yStartVec = lindgen( yS ) * yStep + yRange[0]

constArr = complex( rebin( xStartVec, xS, yS ), $
                    rebin( transpose(yStartVec), xS, yS) )

valArr = complexarr( xS, yS)

res = intarr( xS, yS)

```

```

orIndex = lindgen( long(xS) * yS)

for i = 0, iter-1 do begin

    valArr = valArr^2 - constArr

    whereIn = where( abs( valArr) le 4.0d, COMPLEMENT=whereOut)

    if whereIn[0] eq -1 then break

    valArr = valArr[ whereIn]
    constArr = constArr[ whereIn]

    if whereOut[0] ne -1 then begin

        res[ orIndex[ whereOut]] = i+1

        orIndex = orIndex[ whereIn]
    endif
endfor

loadct,15

tv,res

end

```

here, is the code which uses the function I mentioned above!

Subject: Re: Fractal in IDL!

Posted by [pgrigis](#) on Thu, 29 Oct 2009 14:00:15 GMT

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On Oct 28, 11:15 pm, sathya <sathya.s...@gmail.com> wrote:

```

> Hi,
>
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> set follows the below mentioned function,i.e.
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>
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> and the range for x-axis is [-1.5, 1.5].
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> or Koch snowflake. If I am not wrong, does it follow the given

```

> function?
>
> $a = (1/2) + (i/\text{SQRT}(12))$

That doesn't make any sense.

To draw the snowflake, draw a triangle first.

Then on all sides "_____" of the triangle, replace the straight line by a line with a triangle that sticks out in the middle "___/ ___".
Iterate ad infinitum.

Ciao,
Paolo

>
> Thanks,
> Sathya!

Subject: Re: Fractal in IDL!
Posted by [pgrigis](#) on Thu, 29 Oct 2009 14:01:14 GMT
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On Oct 29, 10:00 am, Paolo <pgri...@gmail.com> wrote:
> On Oct 28, 11:15 pm, sathya <sathya.s...@gmail.com> wrote:
>
>> Hi,
>
>> I am trying to create a fractal set in IDL. I know that a Mandelbrot
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> That doesn't make any sense.
>
> To draw the snowflake, draw a triangle first.

>
> Then on all sides "_____" of the triangle, replace the straight
> line by a line with a triangle that sticks out in the

Line break should be here: middle "__^__" .

> Iterate ad infinitum.

>
> Ciao,
> Paolo

>
>
>
>> Thanks,
>> Sathya!
>
>

Subject: Re: Fractal in IDL!
Posted by [rtk](#) on Thu, 29 Oct 2009 18:32:38 GMT
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On Oct 28, 9:15 pm, sathya <sathya.s...@gmail.com> wrote:

> Hi,
>
> I am trying to create a fractal set in IDL. I know that a Mandelbrot
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> or Koch snowflake. If I am not wrong, does it follow the given
> function?
>
> $a = (1/2) + (i/\text{SQRT}(12))$
>
> Thanks,
> Sathya!

Perhaps the easiest way to draw fractals of various kinds is to use the IFS ('Iterated Function System') approach. Email me if you want IDL code that can do that.

Also, the Sierpinski triangle is perhaps the simplest of all fractals

to generate. Here's BASIC code from the 80s to do it. I leave translation to IDL as an exercise for the reader :)

```
10 HOME:HGR2:HCOLOR=3: REM This just turns on the graphics and sets
the color
20 X(1)=0:Y(1)=191:X(2)=140:Y(2)=0:X(3)=278:Y(3)=191: REM Triangle
corners
30 X=X(1):Y=Y(1): REM A starting point
40 N = INT(3*RND(1))+1: X=INT(0.5*(X+X(N))): Y=INT(0.5*(Y+Y(N))): REM
The magic is here
50 HPLOT X,Y:GOTO 40: REM Plot the new point and continue
```

Have fun!

Ron
