

L_system_100hex.scad

Listaxe de hexágonos creados para o proxecto 100Hex <https://tecnoloxia.org/100hex/>



Inicialmente xerei os fractais e curvas de dragón co meu propio código, que resultaba moi lento e farragoso.

Cando atopei o [programa de Hans Loefflich](#), moito máis rápido e eficaz, decidín recompilar todas as curvas que tiña feitas e adaptalas a esta librería. Agora quedan todas xuntas no ficheiro [L_system_100hex.scad](#)

Moitas curvas son as clásicas ben coñecidas, para facer outras atopei inspiración na web <http://www.fractalcurves.com/> de Jeffrey Ventrella e outras sairon fedellando coas regras de L-System.

I initially generated fractals and dragon curves with my own code, which was very slow and awkward.

When I found [Hans Loefflich's program](#), much faster and more efficient, I decided to collect all the curves I had made and adapt them to this library. They are now all together in the [L_system_100hex.scad](#) file.

Many curves are the classics known, to make other curves I found inspiration on the web <http://www.fractalcurves.com/> by Jeffrey Ventrella and others came out playing with the rules of L-System.

Thanks!

Thanks to Hans Loefflich for the code.

Thanks to fractalcurves.com for the inspiration.

Generate: [L_system_100hex.scad](#)

100Hex: <https://tecnoloxia.org/100hex/>

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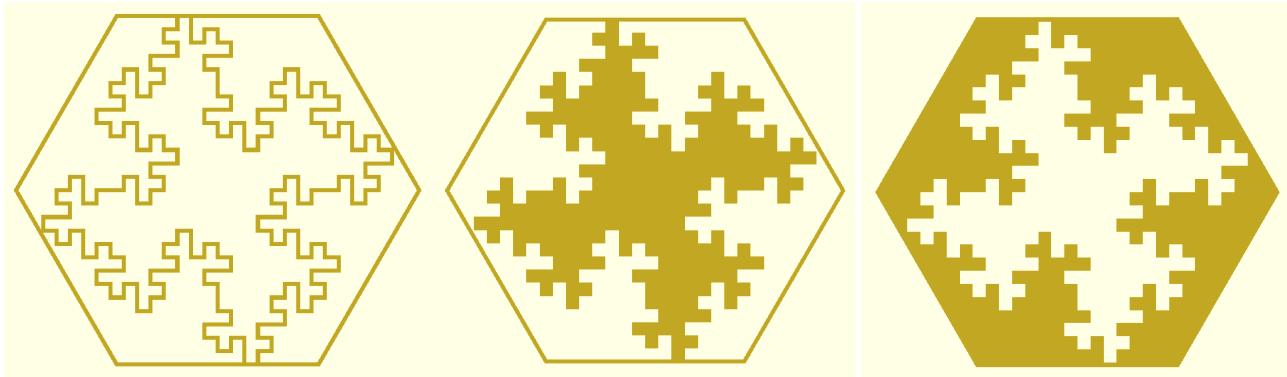
01- Minkowski

```
axiom="F+F+F+F";
rules=["F=F+F-F-FF+F+F-F"];
angle=90;
```

n=2;
polygon=false;
diferenza=0;

n=2;
polygon=true;
diferenza=0;

n=2;
polygon=true;
diferenza=1;



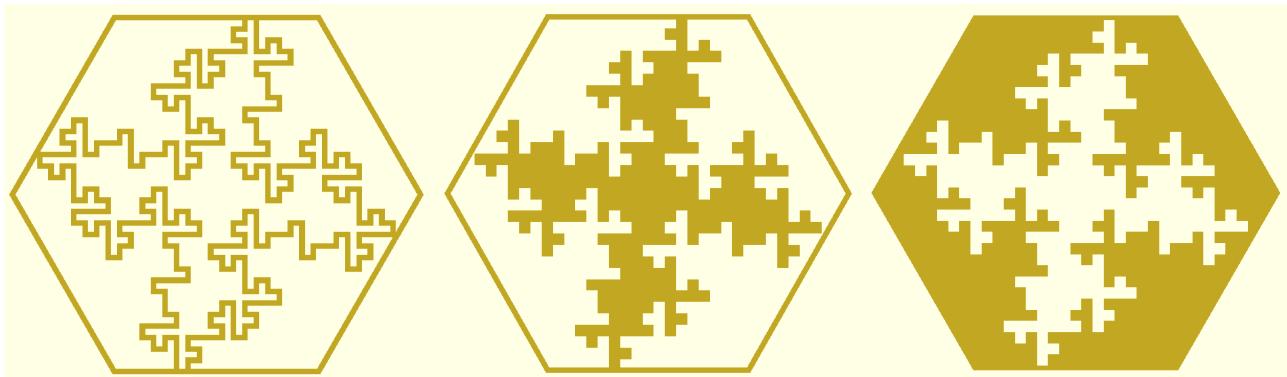
02- quadratic1

```
axiom="F+F+F+F";
rules=["F=F+F-F-FFF+F+F-F"];
angle=90;
```

n=2;
polygon=false;
diferenza=0;

n=2;
polygon=true;
diferenza=0;

n=2;
polygon=true;
diferenza=1;

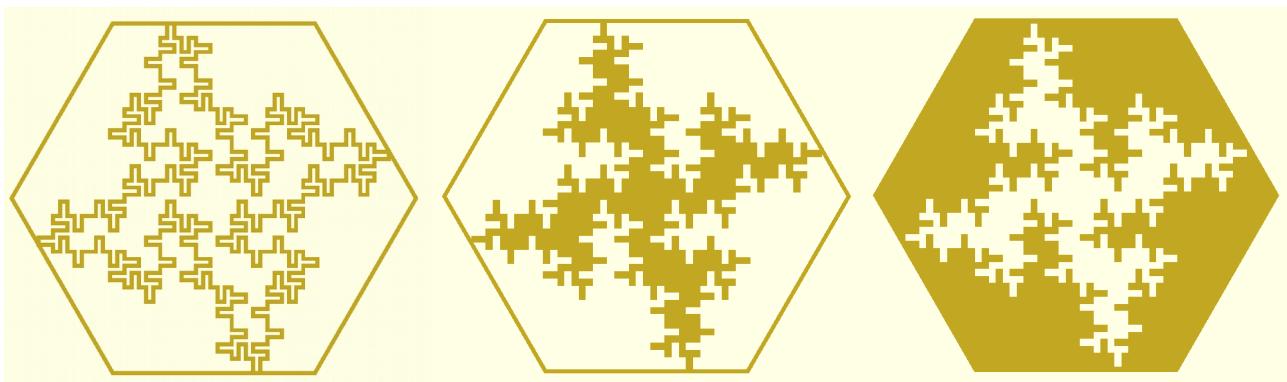


03- quadratic2

```
axiom="F+F+F+F";  
rules=["F=F+FF-F-FF+F-FF+F+FF-F"];  
angle=90;  
  
n=2;  
polygon=false;  
diferenza=0;
```

```
n=2;  
polygon=true;  
diferenza=0;
```

```
n=2;  
polygon=true;  
diferenza=1;
```



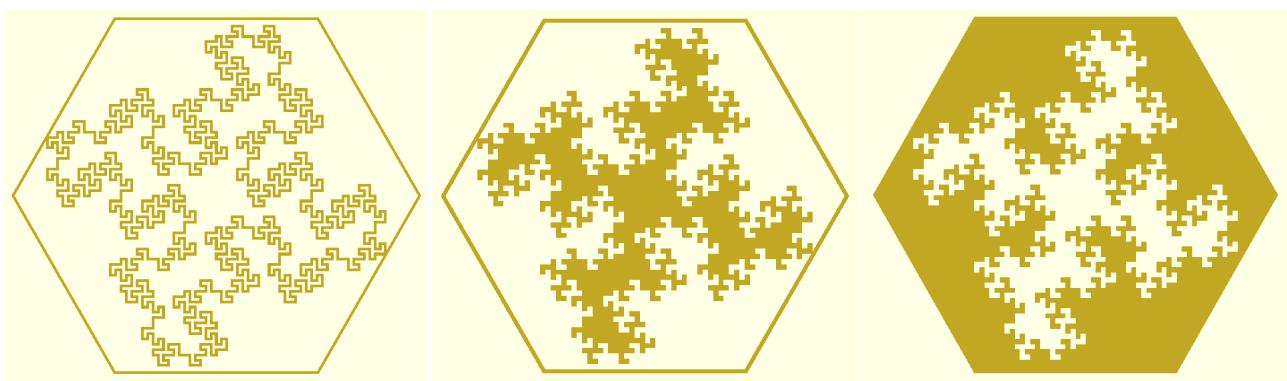
04- quadratic3

```
axiom="F+F+F+F";  
rules=["F=F-FF+FF+F+F-F-FF+F+F-F-FF-FF+F"];  
angle=90;
```

```
n=2;  
polygon=false;  
diferenza=0;
```

```
n=2;  
polygon=true;  
diferenza=0;
```

```
n=2;  
polygon=true;  
diferenza=1;
```

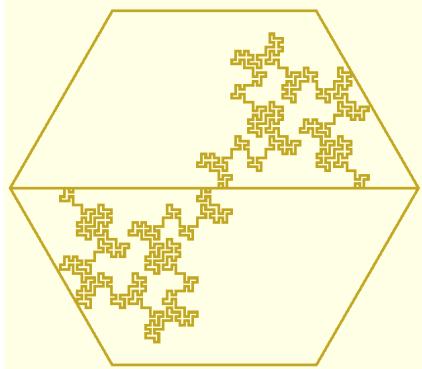


05a- 32_SegmentCurve I

```
axiom="F";  
rules=["F=F+F-F-F+F+FF-F+F+FF+F-F-FF+FF-FF+F+F-FF-F-F+FF-F-F+F-F"];  
angle=90;
```

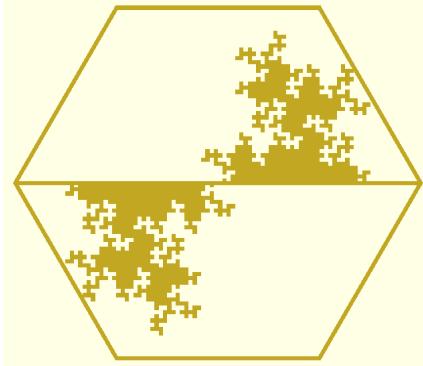
n=2;

polygon=false;
diferenza=0;



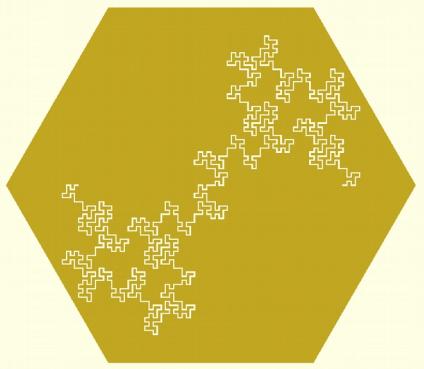
n=2;

polygon=true;
diferenza=0;



n=2;

polygon=false;
diferenza=1;

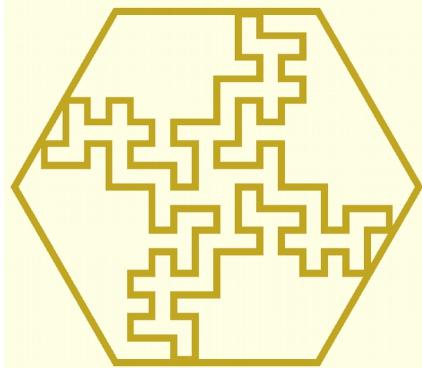


05b- 32_SegmentCurve II

```
axiom="F-F-F-F";  
rules=["F=F+F-F-F+F+FF-F+F+FF+F-F-FF+FF-FF+F+F-FF-F-F+FF-F-F+F-F"];  
angle=90;
```

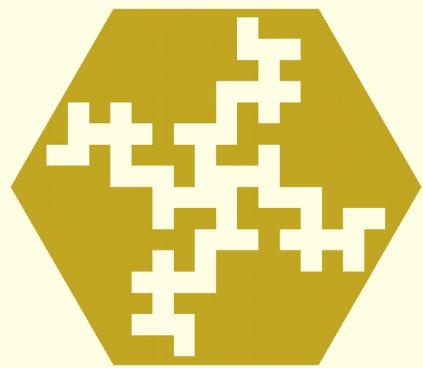
n=1;

polygon=false;
diferenza=0;



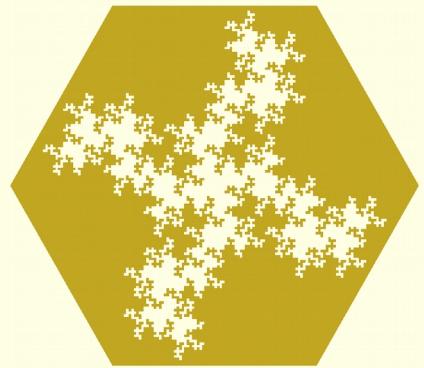
n=1;

polygon=true;
diferenza=1;



n=2;

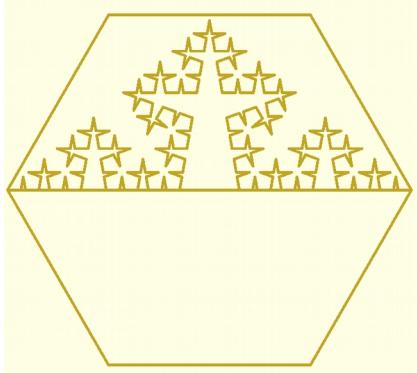
polygon=true;
diferenza=1;



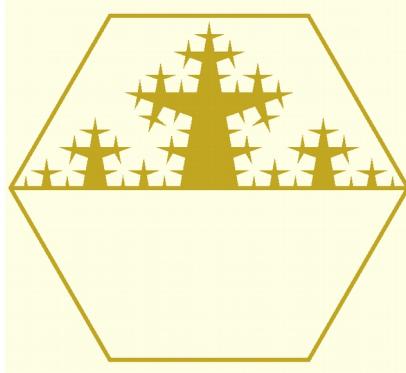
06-CesaroSweepVariant

```
axiom="F";
rules=["F=F+F--F+F"];
angle=80;
```

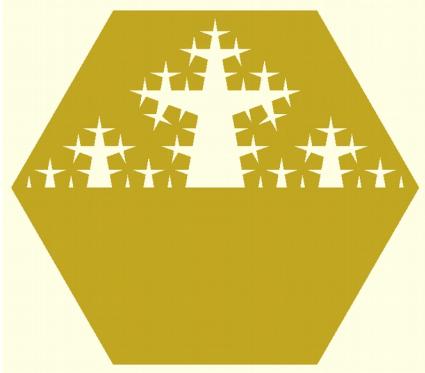
n=4;
polygon=false;
diferenza=0;



n=4;
polygon=true;
diferenza=0;



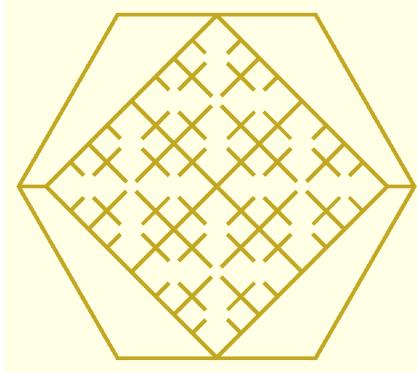
n=4;
polygon=true;
diferenza=1;



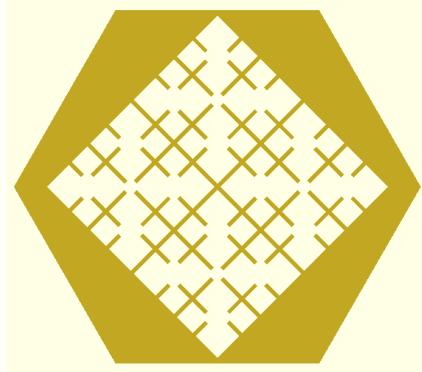
07-CesaroCarpet

```
axiom="X+X+X+X";
rules=["X=FXF+FXF--FXF+FXF"];
angle=90;
```

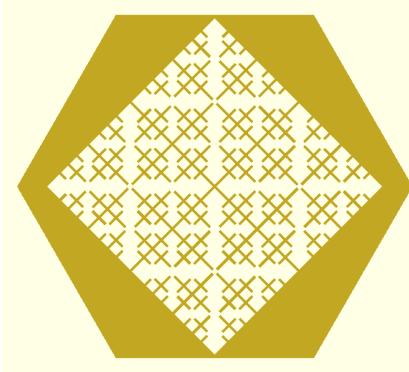
n=3;
polygon=false;
diferenza=0;



n=3;
polygon=false;
diferenza=2;



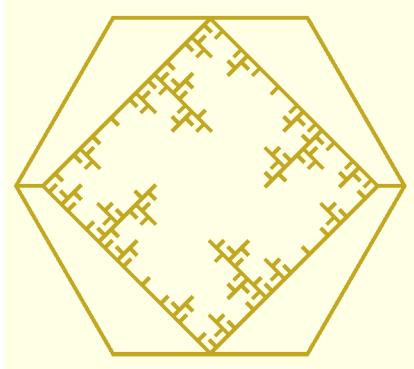
n=4;
polygon=false;
diferenza=2;



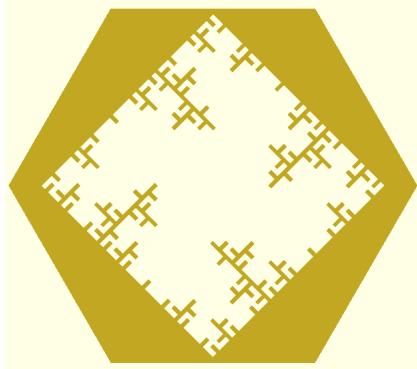
08-icyFractal

```
axiom="F-F-F-F";
rules=["F=FF-F--F-F"];
angle=90;
```

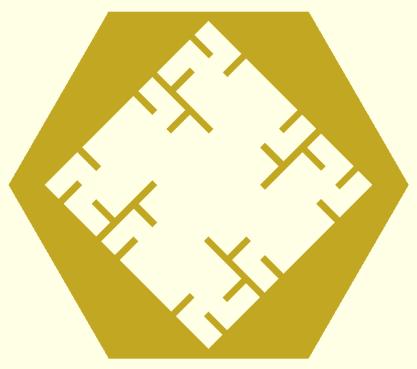
n=3;
polygon=false;
diferenza=0;



n=3;
polygon=false;
diferenza=2;



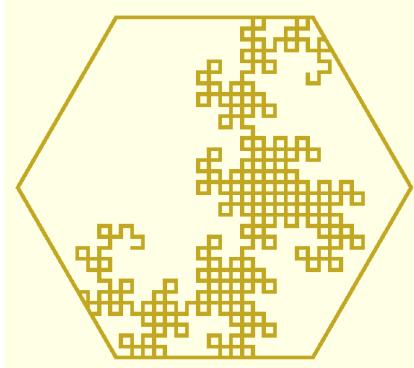
n=2;
polygon=false;
diferenza=2;



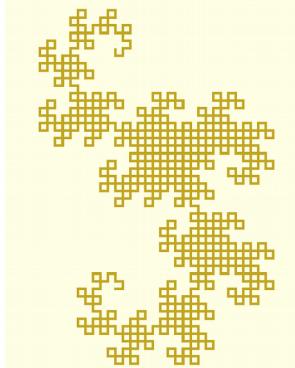
09- Heighway's dragon curve

```
axiom="FX";
rules=["X=X+YF+", "Y=-FX-Y"];
angle=90;
```

n=9;
hexagono= true;



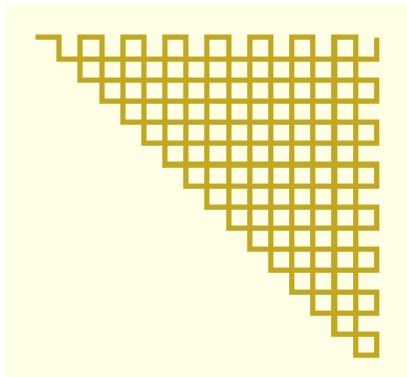
n=10;
hexagono= false;



10- Polya Sweep (no hexagon)

```
axiom="X";
rules=["X=+FX-FY-", "Y=-FX+FY+", "F="];
angle=90;
```

```
n=8;
hexagono= =false;
```



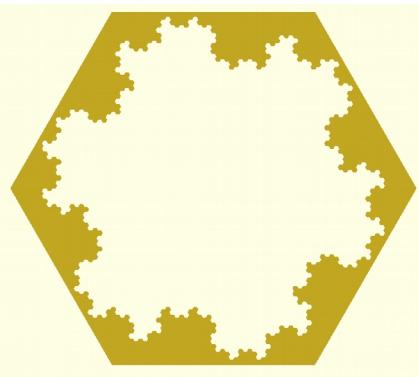
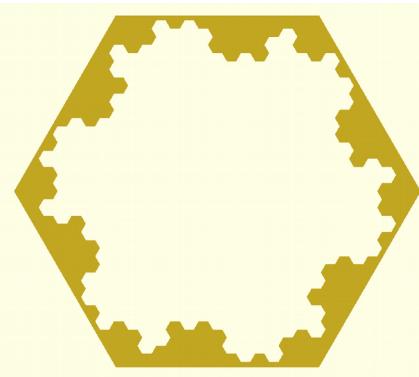
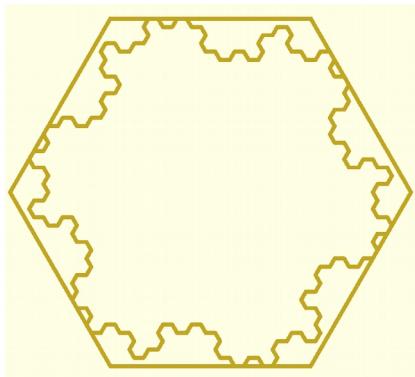
11- hexagonal dragon

```
axiom="X-X-X-X-X-X";
rules=["X=X+YF+", "Y=-FX-Y"];
angle=60;
```

n=5;
polygon=false;
diferenza=0;

n=5;
polygon=true;
diferenza=1;

n=7;
polygon=true;
diferenza=1;

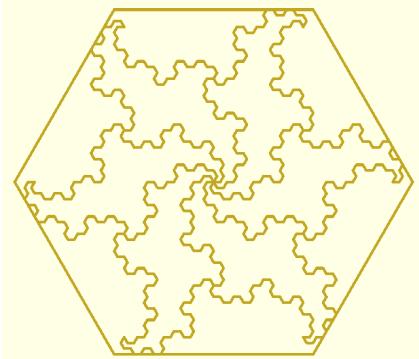


12- hexagonal dragon Estrela

```
axiom="Z-Z-Z--Z-Z-Z";  
rules=["X=X+YF+", "Y=-FX-Y", "Z=FX+FX"];  
angle=60;
```

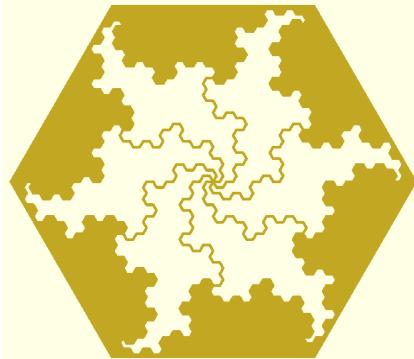
n=7;

polygon=false;
diferenza=0;



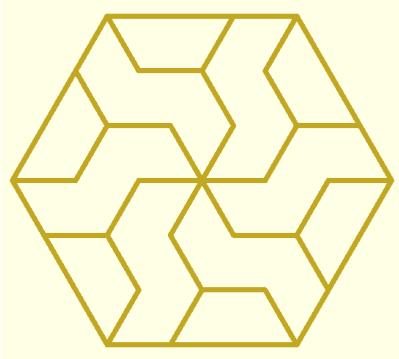
n=7;

polygon=true;
diferenza=2;



n=3;

polygon=true;
diferenza=0

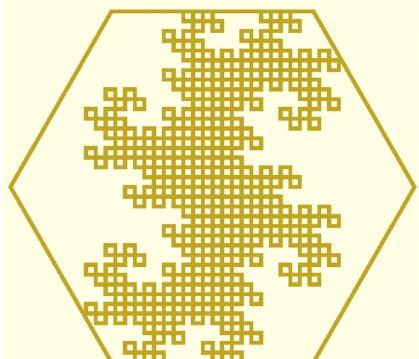


13- twin_dragon

```
axiom="FX+FX+";  
rules=["X=X+YF", "Y=FX-Y"];  
angle=90;
```

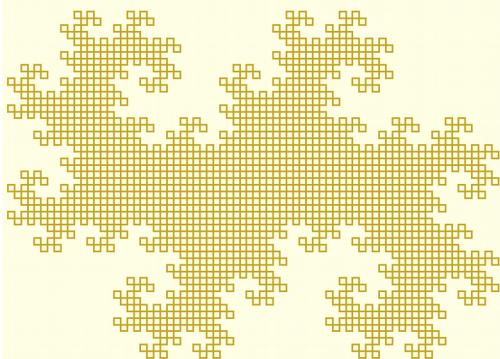
n=9;

polygon=false;
diferenza=0;



n=11;

polygon=false;
diferenza=0;

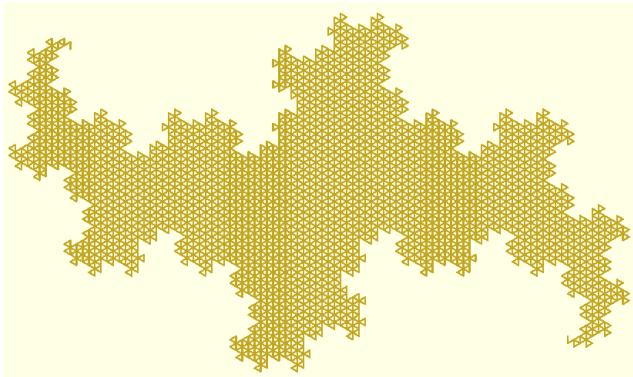
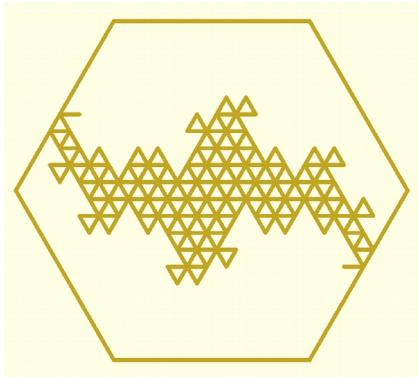


14- terdragon

```
axiom="F";
rules=["F=F+F-F"];
angle=120;
```

```
n=5;
polygon=false;
diferenza=0;
```

```
n=8;
polygon=false;
diferenza=0;
```



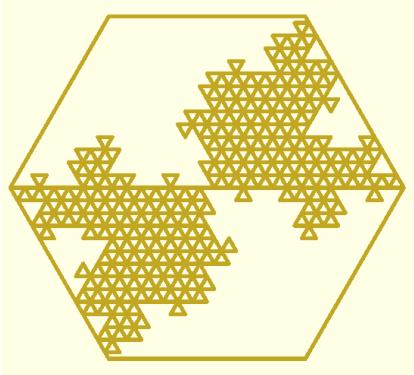
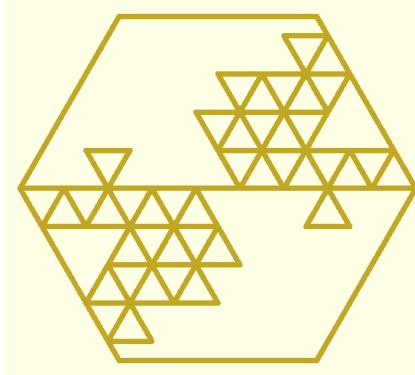
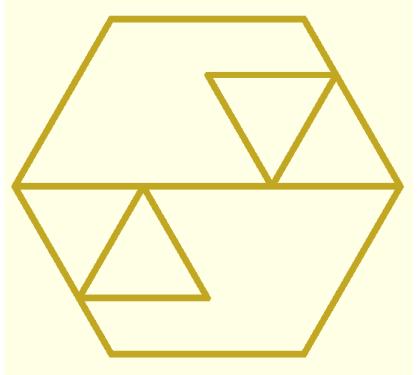
15-inverted_terdragon

```
axiom="F";
rules=["F=F-F+F + F-F+F - F-F+F"];
angle=120;
```

```
n=1;
polygon=false;
diferenza=0;
```

```
n=2;
polygon=false;
diferenza=0;
```

```
n=3;
polygon=false;
diferenza=0
```



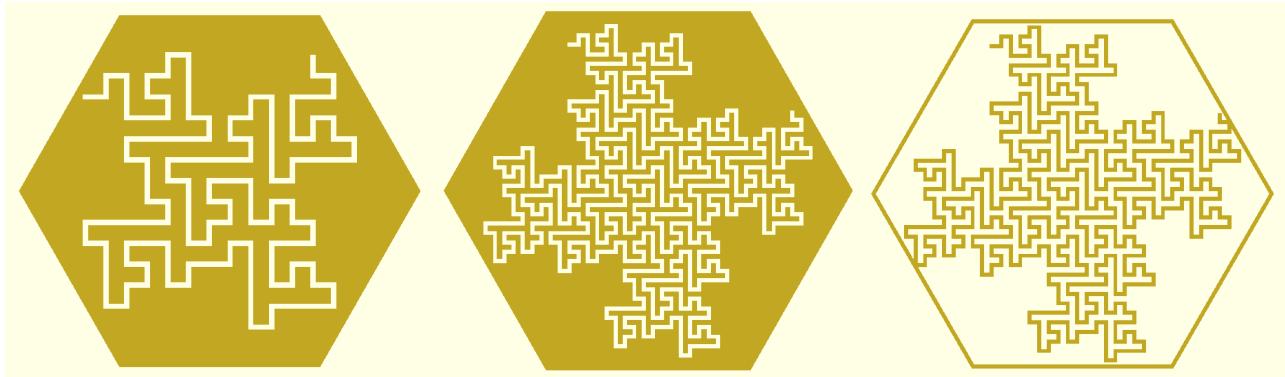
16- Mandelbrot Quartet - root5

```
axiom="+X";
rules=["X=-FYFX+FX+FY-FX", "Y=FY+FX-FY-FYFX+", "F=" ];
angle=90;
```

n=3;
polygon=false;
differenza=1;

n=4;
polygon=false;
differenza=1;

n=4;
polygon=false;
differenza=0



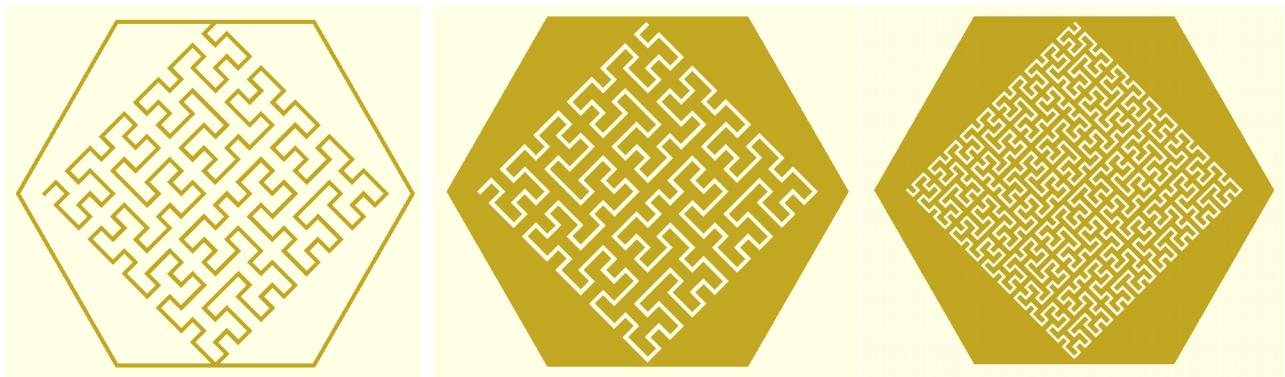
17- Hilbert curve

```
axiom="X";
rules=["X=-YF+XFX+FY-", "Y=+XF-YFY-FX+"];
angle=90;
```

n=4;
polygon=false;
differenza=0;

n=4;
polygon=false;
differenza=1;

n=5;
polygon=false;
differenza=0



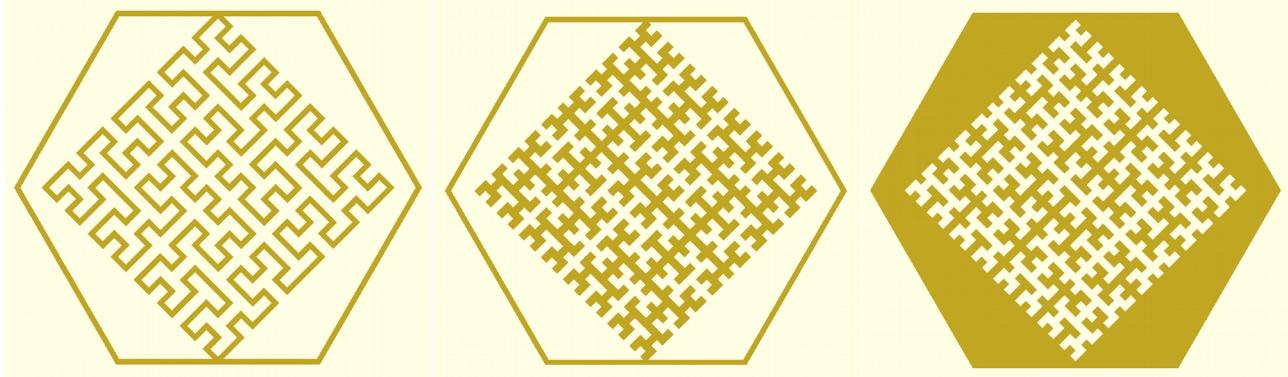
18- Moore curve

```
axiom="F-XFX-F-XFX";
rules=["X=+YF-XFX-FY+", "Y=-XF+YFY+FX-"];
angle=90;
```

n=3;
polygon=false;
diferenza=0;

n=4;
polygon=true;
diferenza=0;

n=4;
polygon=false;
diferenza=2



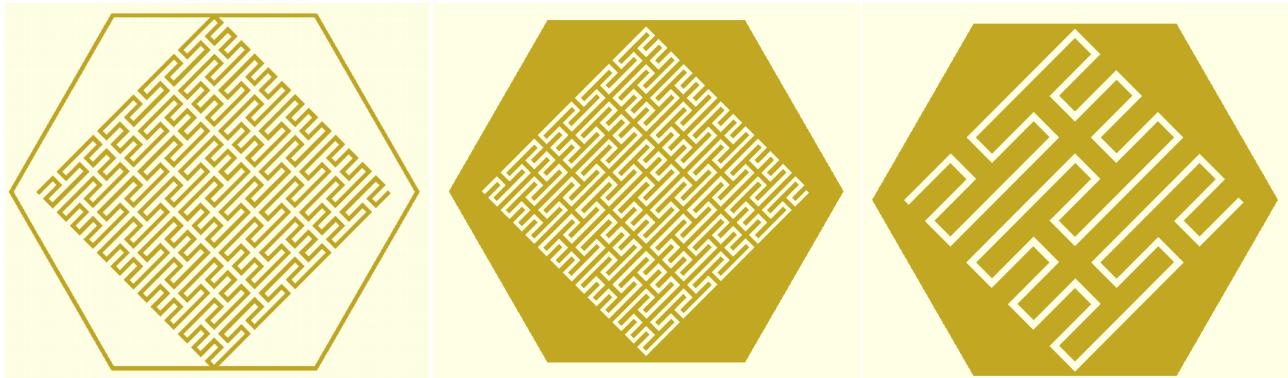
19- Peano curve

```
axiom="X";
rules=["X=XFYFX-F-YFXFY+F+XFYFX", "Y=YFXFY+F+XFYFX-F-YFXFY"];
angle=90;
```

n=3;
polygon=false;
diferenza=0;

n=3;
polygon=false;
diferenza=1;

n=2;
polygon=false;
diferenza=2



20- Gosper curve

```
axiom="X";
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F=" ];
angle=60;
```

n=3;

polygon=false;

differenza=0;

n=3;

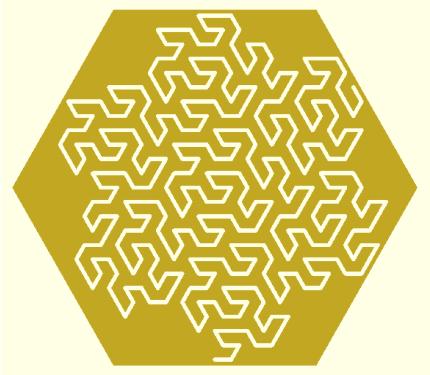
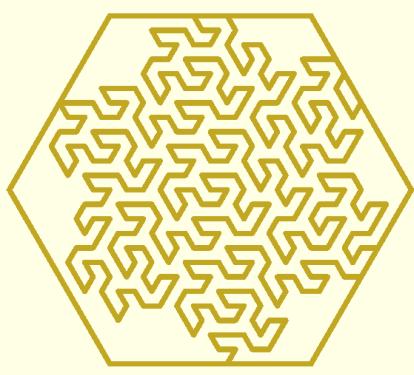
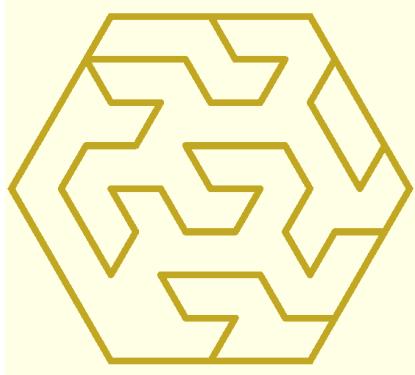
polygon=false;

differenza=0;

n=3;

polygon=false;

differenza=1



21- inner-flip Gosper curve (REVISAR!!)

```
axiom="X";
rules=["X=FZ-FY--FY+FZ++FZFZ+FY-", "Y=FW+XF++XF-WF--WFWF-XF+", "Z=-WF+XFXF+
+XF+WF--WF-XF", "W=+FY-FZF--ZF-FY++FY+FZ", "F=" ];
angle=60;
```

n=3;

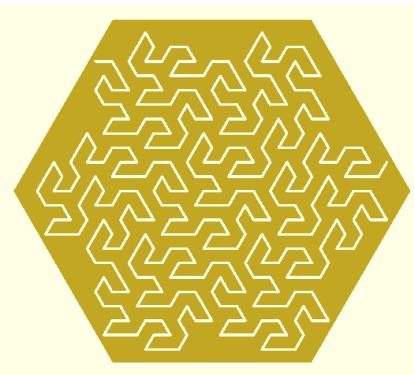
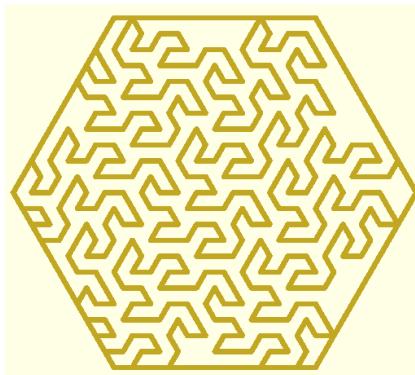
polygon=false;

differenza=0;

n=3;

polygon=false;

differenza=1;



22- Gosper curve tree

```
axiom="X--X--X";
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F=" ];
angle=60;
```

n=3;

polygon=false;

differenza=0;

n=3;

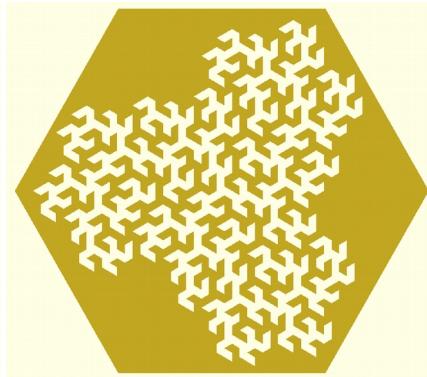
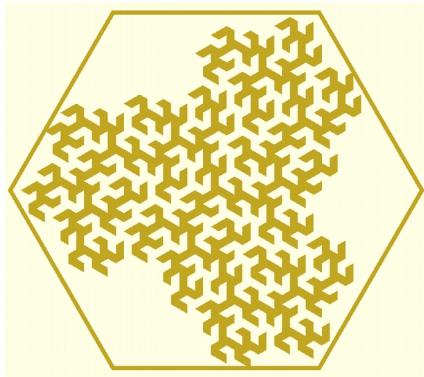
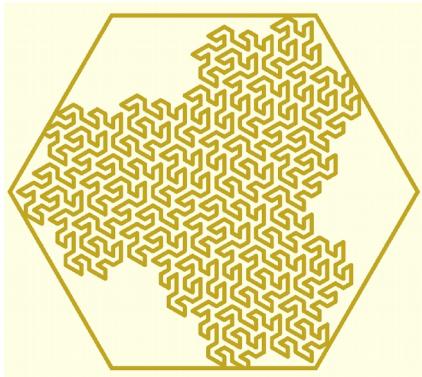
polygon=true;

differenza=0;

n=3;

polygon=true;

differenza=1



23- Gosper curve star

```
axiom="X-X-X-X-X-X";
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F=" ];
angle=60;
```

n=2;

polygon=false;

differenza=0;

n=2;

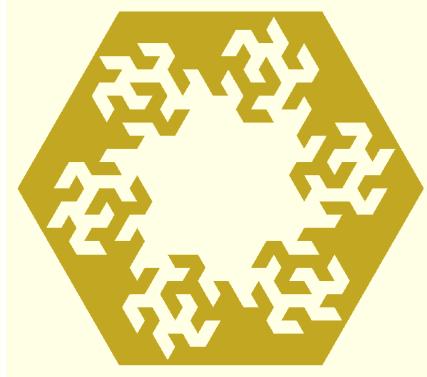
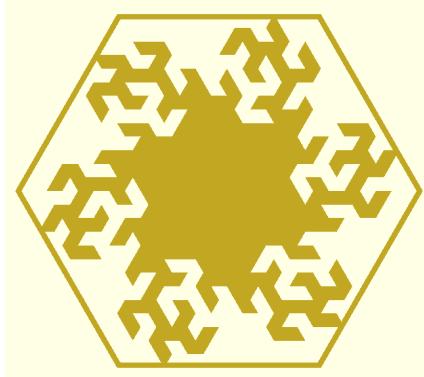
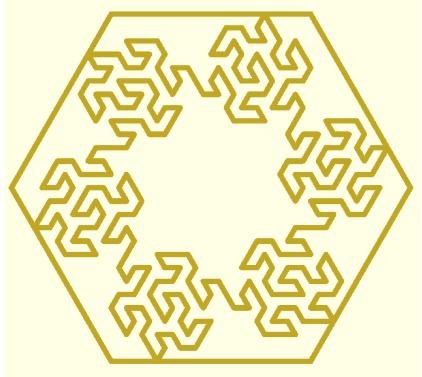
polygon=true;

differenza=0;

n=2;

polygon=true;

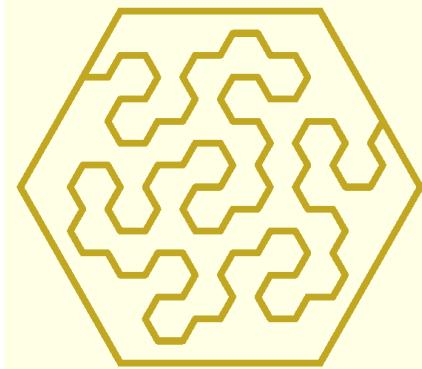
differenza=1



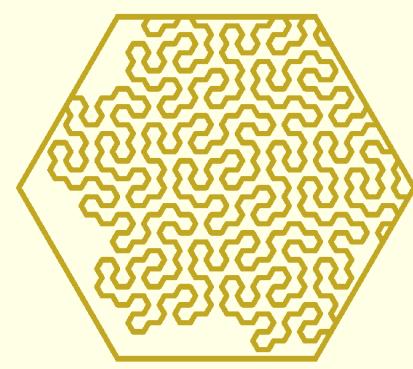
24- Gosper hex

```
axiom="X";
rules=["X=-F++F-X-F--F+Y---F--F+Y+F++F-X+++F++F-X-F++F-X+++F--F+Y--", "Y=+F++F-X-F--F+Y+F--F+Y---F--F+Y---F++F-X+++F++F-X+++F--F+Y", "F=" ];
angle=30;
```

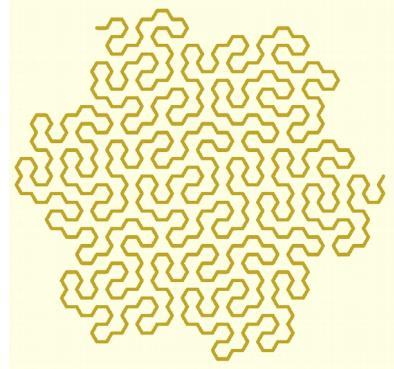
n=2;
polygon=false;
differenza=0;



n=3;
polygon=false;
differenza=0;



n=3; hexagon=false;
polygon=false;
differenza=0;

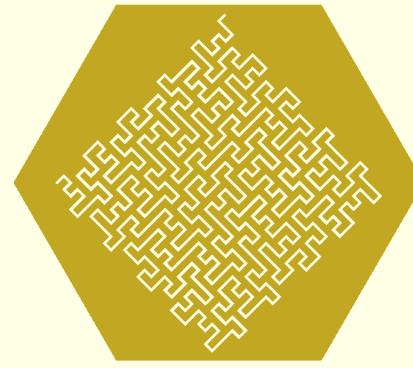
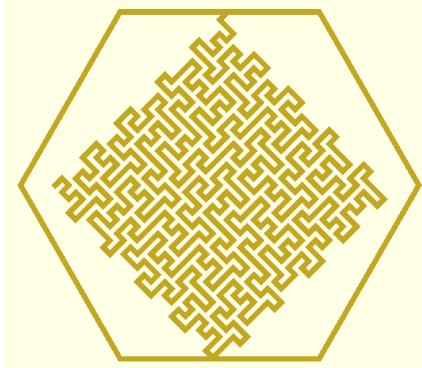


25- Quadratic Gosper

```
axiom="XF";
rules=["X=XFX-YF-YF+FX+FX-YF-YFFX+YF+FXFXYF-FX+YF+FXFX+YF-FXYF-YF-FX+FX+YFYF-", "Y=+FXFX-YF-YF+FX+FXYF+FX-YFYF-FX-YF+FXYFYF-FX-YFFX+FX+YF-YF-FX+FX+YFY" ];
angle=90;
```

n=2;
polygon=false;
differenza=0;

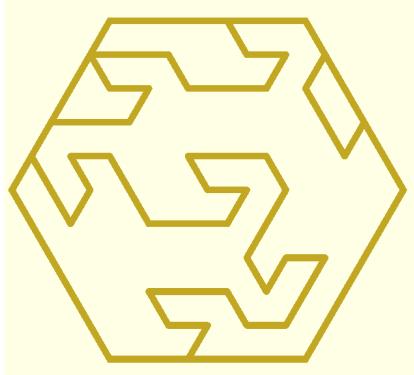
n=3;
polygon=false;
differenza=1;



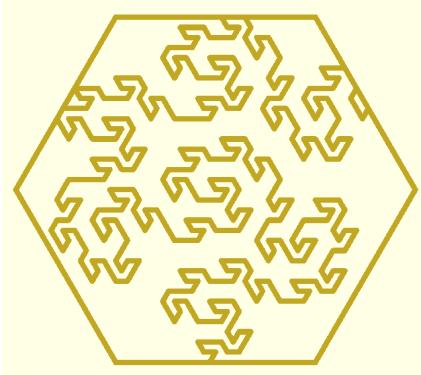
26- Gosper variation

```
axiom="X";
rules=["X=FX+YF++YF-FX--FXFX-YF+","Y=-FX+YFYF++YF+FX--FX-FY", "F=F" ];
angle=60;
```

n=2;
polygon=false;
differenza=0;



n=3;
polygon=false;
differenza=0;



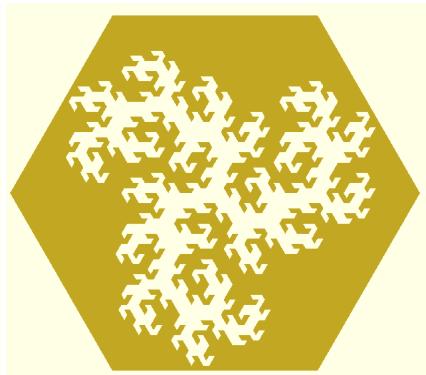
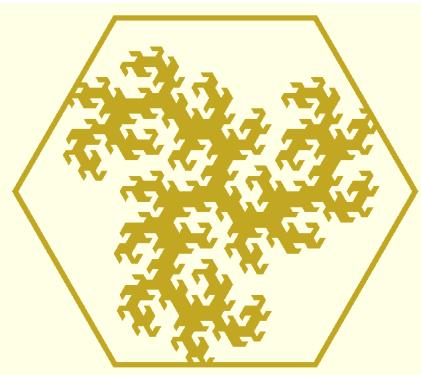
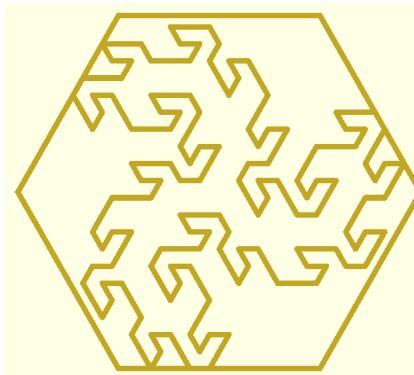
26a- Gosper variation tree

```
axiom="X--X--X";
rules=["X=FX+YF++YF-FX--FXFX-YF+","Y=-FX+YFYF++YF+FX--FX-FY", "F=F" ];
angle=60;
```

n=2;
polygon=false;
differenza=0;

n=3;
polygon=true;
differenza=0;

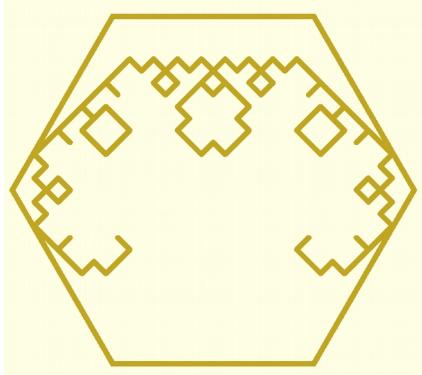
n=3;
polygon=true;
differenza=1;



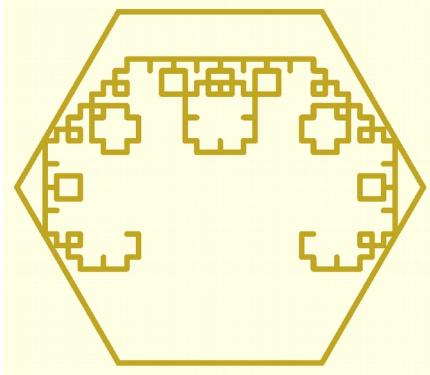
27- Levy_c curve

```
axiom="F";
rules=["F=+F--F+F+"];
angle=45;
```

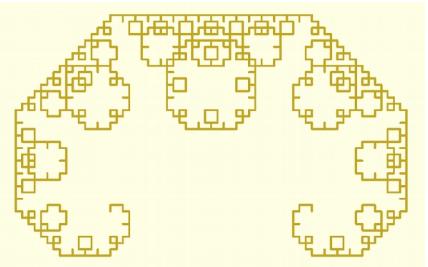
n=7;
polygon=false;
diferenza=0;



n=8;
polygon=false;
diferenza=0;



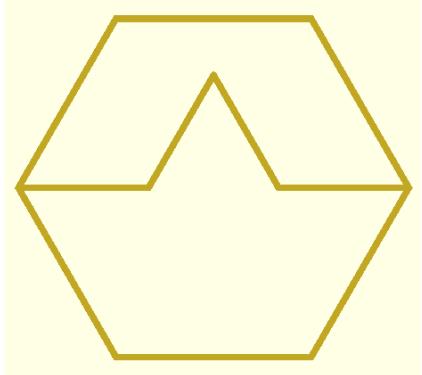
n=10;
hexagon=false;



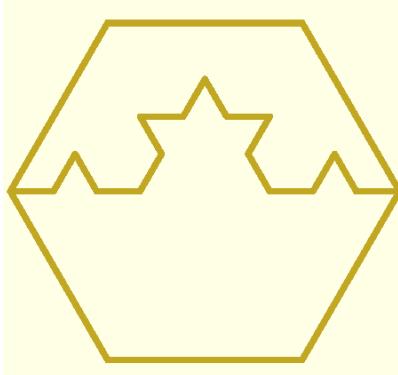
28- Koch curve

```
axiom="F";
rules=["F=F+F-F+F"];
angle=60;
```

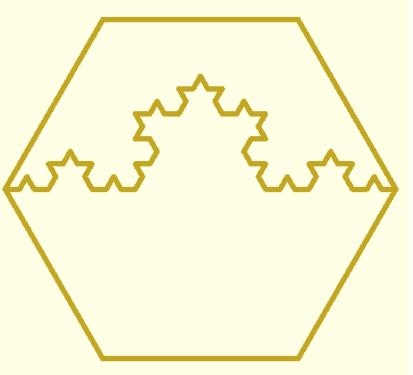
n=1;
polygon=false;
diferenza=0;



n=2;
polygon=false;
diferenza=0;



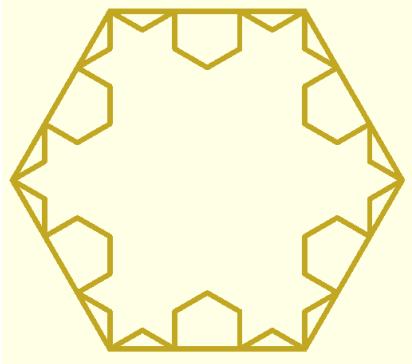
n=3;
polygon=false;
diferenza=0;



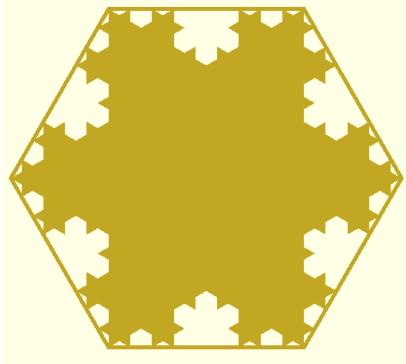
29- Koch snowflake

```
axiom="F--F--F";
rules=["F=F+F--F+F"];
angle=60;
```

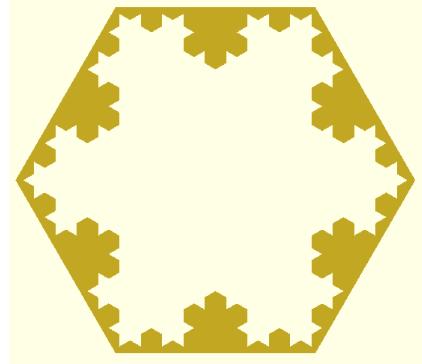
n=2;
polygon=false;
diferenza=0;



n=3;
polygon=true;
diferenza=0;



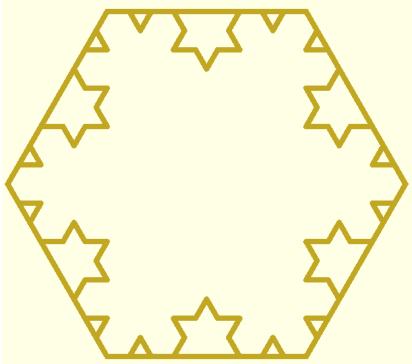
n=3;
polygon=true;
diferenza=1;



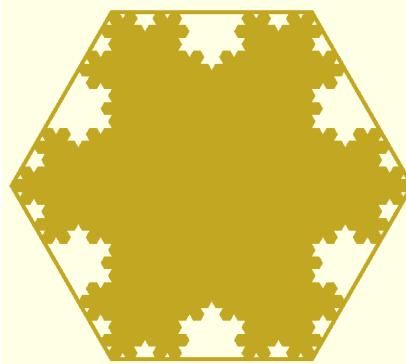
30- Koch snowflake inverted

```
axiom="F+F+F+F+F+F";
rules=["F=F+F--F+F"];
angle=60;
```

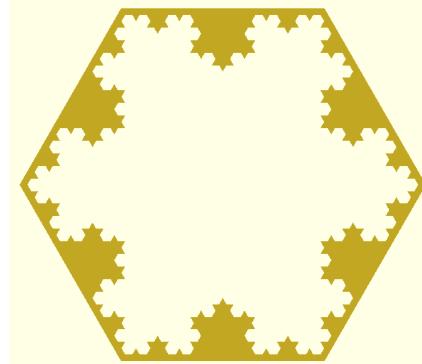
n=2;
polygon=false;
diferenza=0;



n=3;
polygon=true;
diferenza=0;



n=3;
polygon=true;
diferenza=1;



31- Koch snowflake variant

```
axiom="F--F--F--F--F--F";
```

```
rules=["F=-F++F--F+"];
```

```
angle=30;
```

```
n=3;
```

```
polygon=false;
```

```
differenza=0;
```

```
n=3;
```

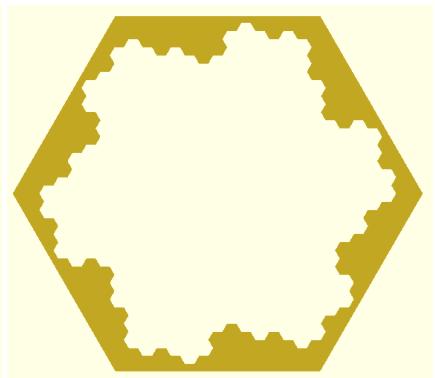
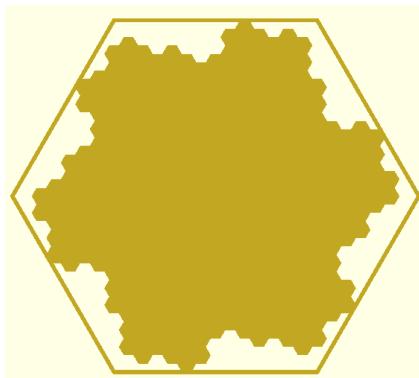
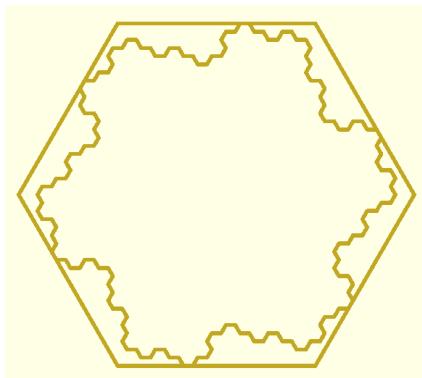
```
polygon=true;
```

```
differenza=0;
```

```
n=3;
```

```
polygon=true;
```

```
differenza=1;
```



32- Reflected Koch

```
axiom="X";
```

```
rules=["X=XF+YF--XF-XF--XF--YFXF", "Y=XFYF++YF++YF+YF++XF-YF", "F="];
```

```
angle=60;
```

```
n=2;
```

```
polygon=false;
```

```
differenza=0;
```

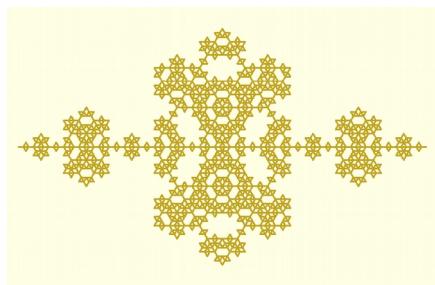
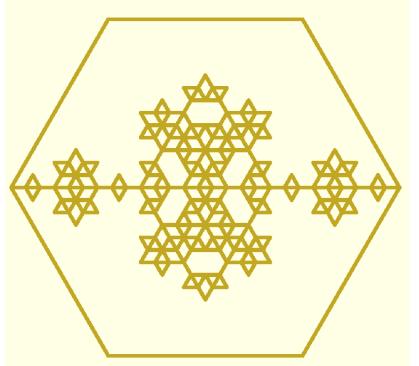
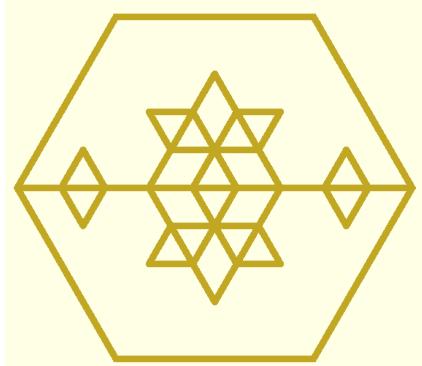
```
n=3;
```

```
polygon=false;
```

```
differenza=0;
```

```
n=4;
```

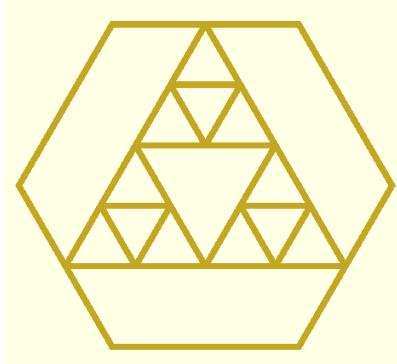
```
hexagon=false;
```



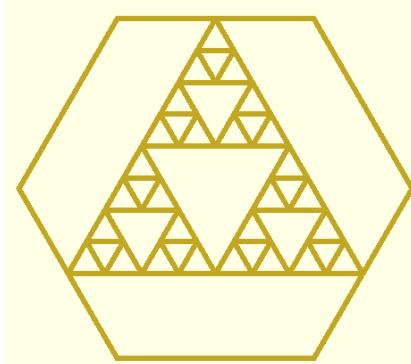
33- Sierpinski triangle

```
axiom="X";
rules=["X=++FX++FX++FX", "F=FF"];
angle=60;
```

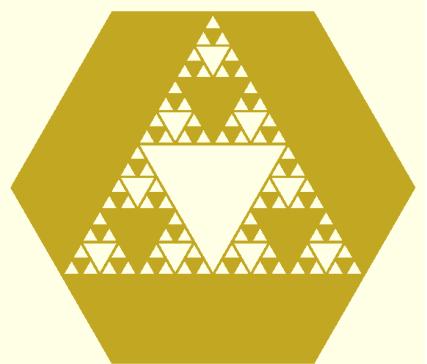
n=3;
polygon=false;
differenza=0;



n=4;
polygon=false;
differenza=0;



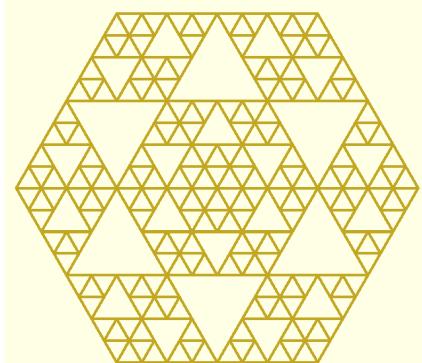
n=5;
polygon=false;
differenza=0;



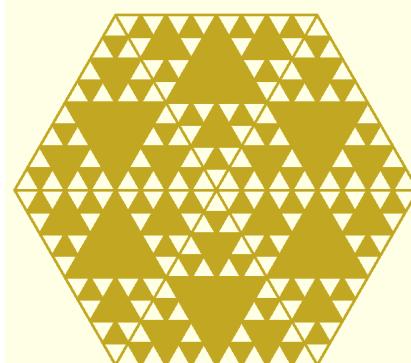
34- Sierpinski hexagon

```
axiom="Y-Y-Y-Y-Y-Y";
rules=["X=--FXF++FXF++FXF--", "Y=FXF--FF--FF", "F=FF"];
angle=60;
```

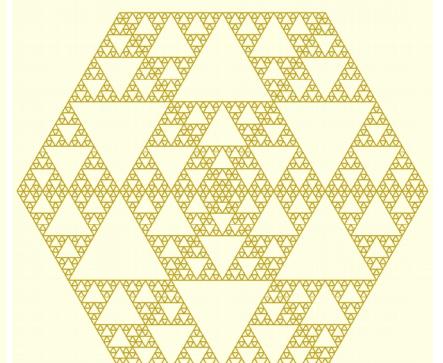
n=4;
polygon=false;
differenza=0;



n=4;
polygon=false;
differenza=2;



n=6;
hexagon=false;



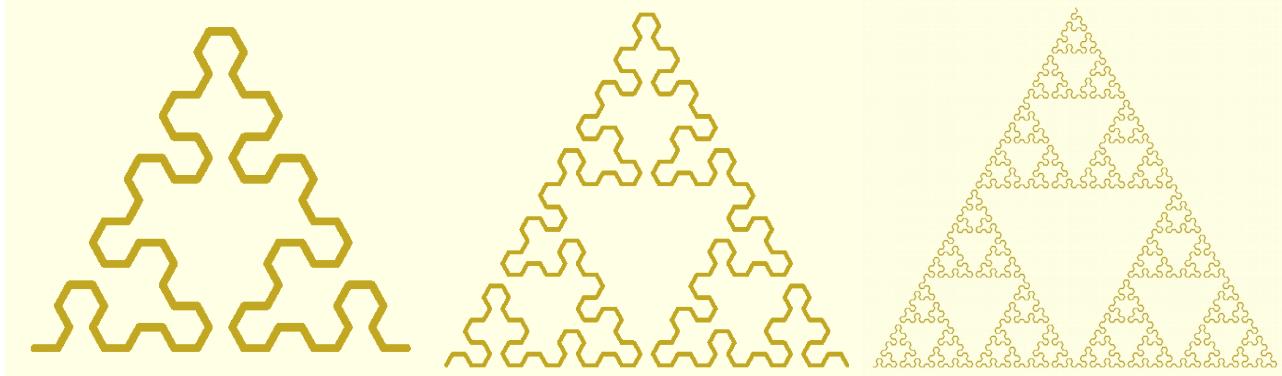
35- Sierpinski arrowhead (not hexagon)

```
axiom="X";
rules=["X=YF+XF+YF", "Y=XF-YF-XF", "F="];
angle=60;
```

n=4;
hexagon=false;

n=5;
hexagon=false;

n=7;
hexagon=false;



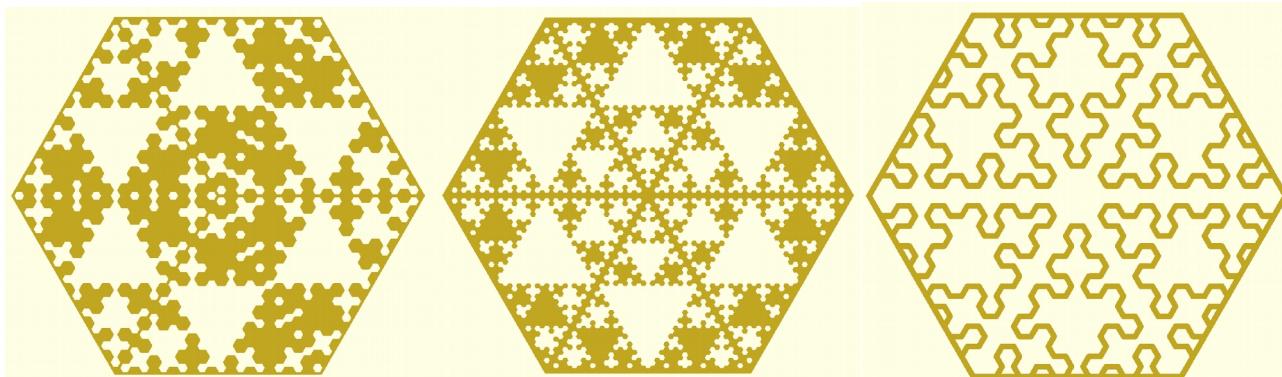
36- Sierpinski arrowhead hexagon

```
axiom = (n%2)==0 ? "FYFF+FYFF+FYFF+FYFF+FYFF+FYFF" : "YF-YF+YF-YF+YF-YF";
rules=["X=YF+XF+Y","Y=XF-YF-X"];
angle=60;
```

n=5;
polygon= false;
diferenza= 2;

n=6;
polygon= true;
diferenza= 0;

n=4;
polygon= false;
diferenza= 0;



37- Sierpinski arrowhead star

```
axiom = (n%2)==0 ? "YF-YF-YF-YF-YF-YF" : "YF+YF+YF+YF+YF+YF";
```

```
rules=["X=YF+XF+Y","Y=XF-YF-X"];
```

```
angle=60;
```

```
n=4;
```

```
polygon=false;
```

```
differenza=0;
```

```
n=5;
```

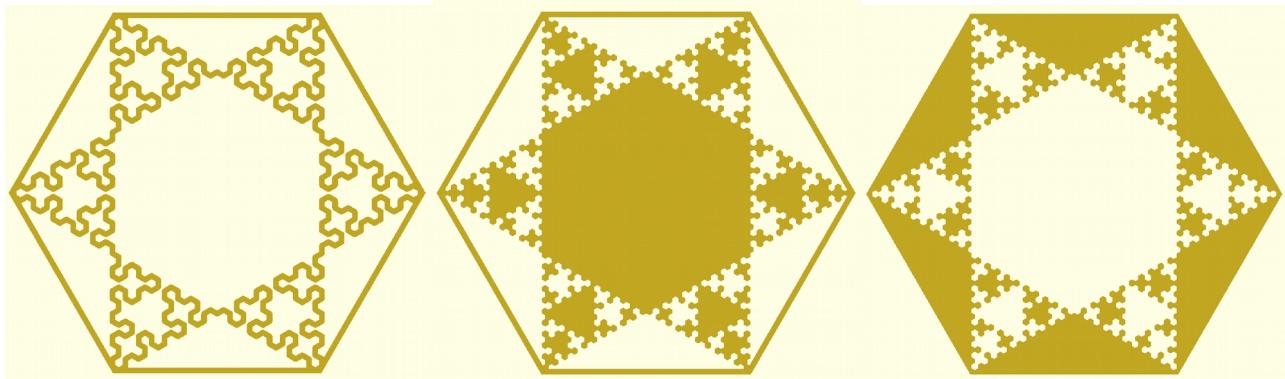
```
polygon=true;
```

```
differenza=0;
```

```
n=5;
```

```
polygon=true;
```

```
differenza=1;
```



38- Lace (not hexagon)

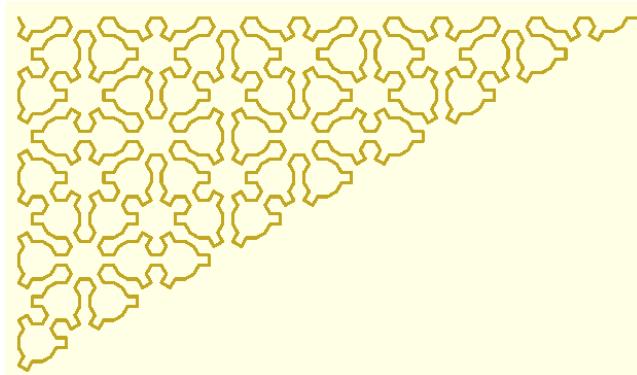
```
axiom="X";
```

```
rules=["X=---W++F++YFW-","Y=+ZFX--F--Z+++","W=+++X--F--ZFX+","Z=-YFW++F++Y---"];
```

```
angle=30;
```

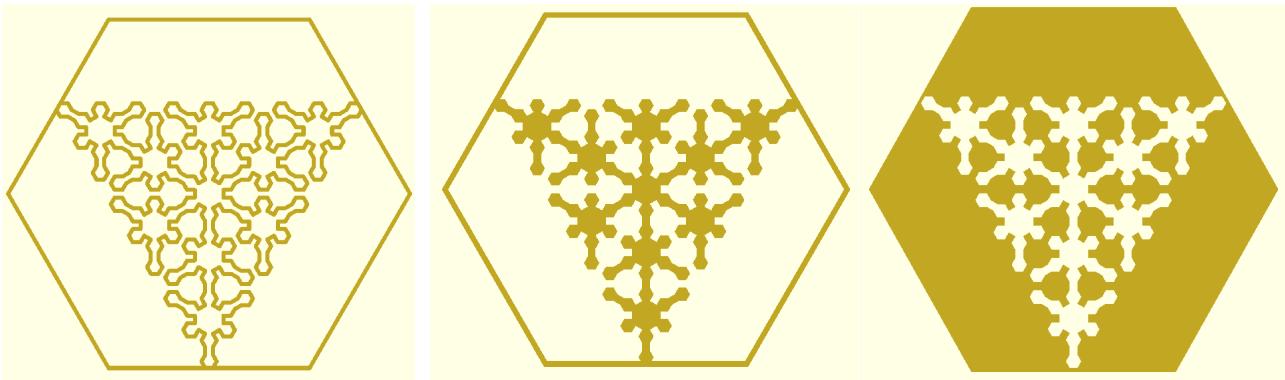
```
n=6;
```

```
hexagon=false;
```



39- Lace triangle

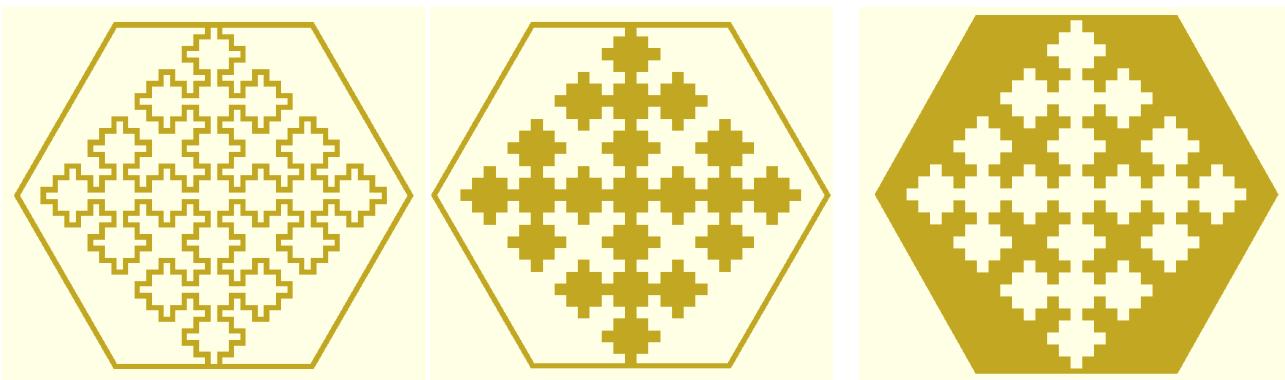
```
axiom="+X+++F+++Z+++F";
rules=["X=---W++F++YFW-","Y=+ZFX--F--Z+++", "W=+++X--F--ZFX+", "Z=-YFW++F++Y---"];
angle=30;
n=5;                                n=5;                                n=5;
polygon=false;                         polygon=true;                         polygon=true;
differenza=0;                           differenza=0;                           differenza=1;
```



40- Square Sierpinski

```
axiom="F+XF+F+XF";
rules=["X=XF-F+F-XF+F+XF-F+F-X"];
angle=90;
```

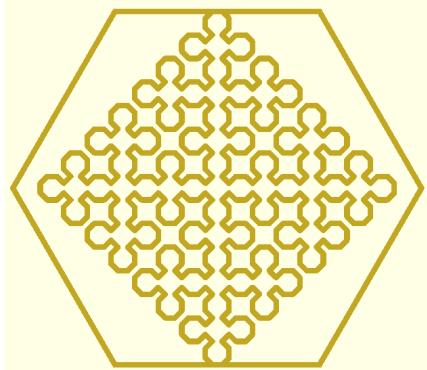
```
n=3;                                n=3;                                n=3;
polygon=false;                         polygon=true;                         polygon=true;
differenza=0;                           differenza=0;                           differenza=1;
```



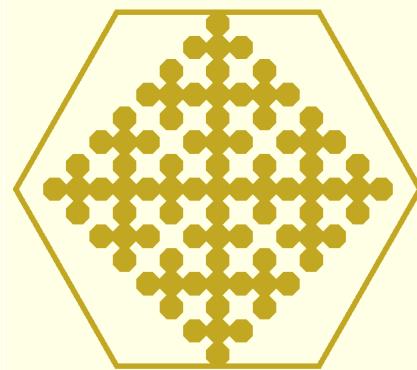
41- Square Sierpinski 45

```
axiom="X--F--X--F";
rules=["X=+Y-F-Y+", "Y=-X+F+X-"];
angle=45;
```

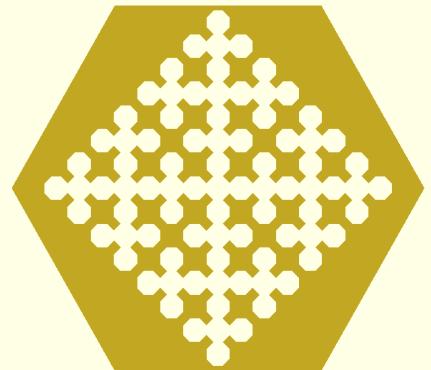
n=8;
polygon=false;
differenza=0;



n=8;
polygon=true;
differenza=0;



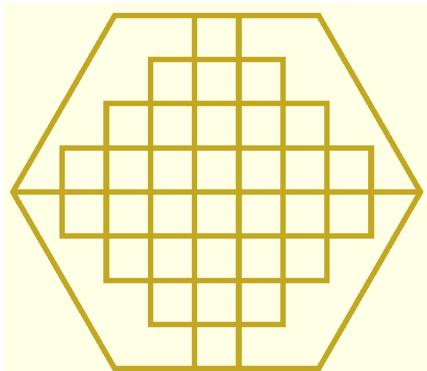
n=8;
polygon=true;
differenza=1;



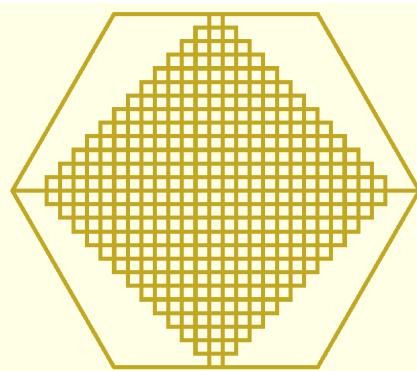
42- Peano curve - root9

```
axiom="F";
rules=["F=F+F-F-F-F+F+F+F-F"];
angle=90;
```

n=2;
polygon=false;
differenza=0;



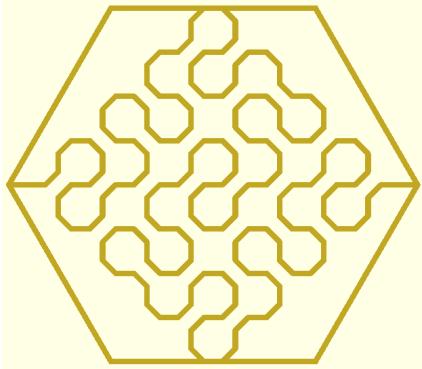
n=3;
polygon=false;
differenza=0;



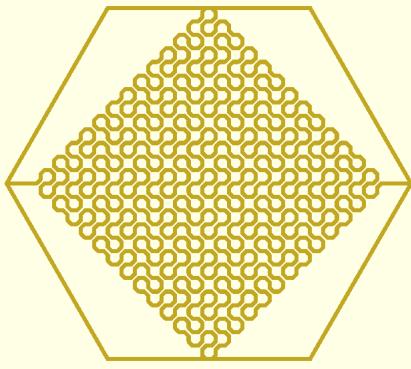
43- Peano round corners

```
axiom="X";
rules=["X=FX+FY+FX-FY-FX-FY-FX-FY-FX+FY+FX+FY+FX+FY-FX-FY", "Y=FY", "F="];
angle=45;
```

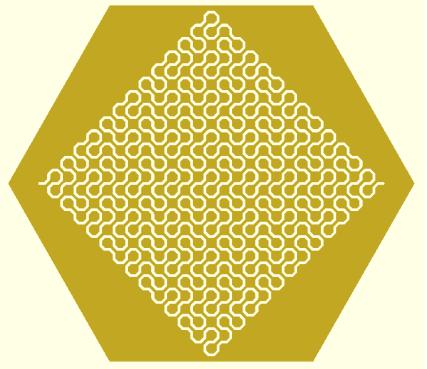
n=2;
polygon=false;
differenza=0;



n=3;
polygon=false;
differenza=0;



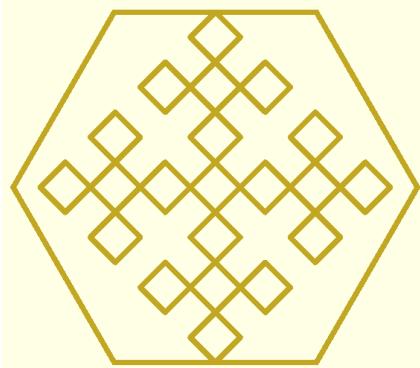
n=3;
polygon=false;
differenza=1;



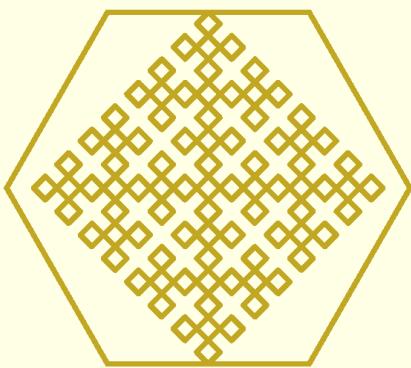
44- krishna

```
axiom="-X--X";
rules=["X=XFX--XFX"];
angle=45;
```

n=3;
polygon=false;
differenza=0;



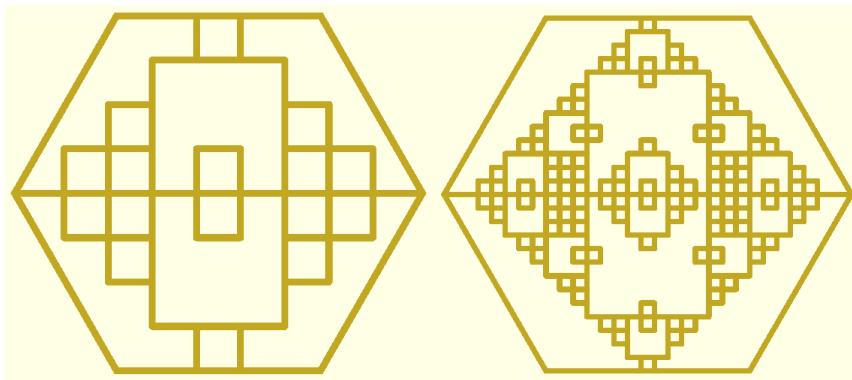
n=4;
polygon=false;
differenza=0;



45- carpet3

```
axiom="F--F";
rules=["F=F+F-F-F-FF+FF"];
angle=90;
```

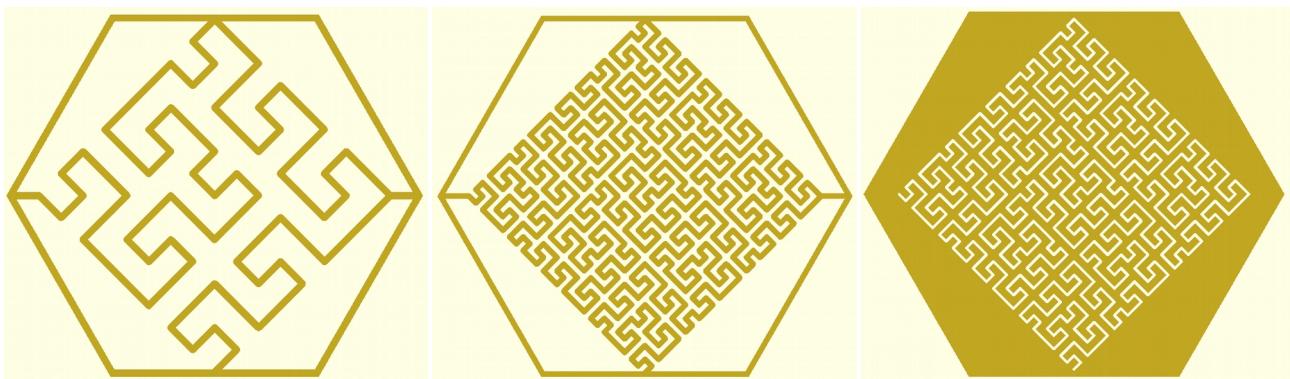
```
n=2;          n=4;
polygon=false; polygon=false;
diferenza=0;  differenza=0;
```



46- carpet5

```
axiom="-L";
rules=["L=LF+RFR+FL-F-LFLFL-FRFR+", "R=-LFLF+RFRFR+F+RF-LFL-FR", "F=F"];
angle=90;
```

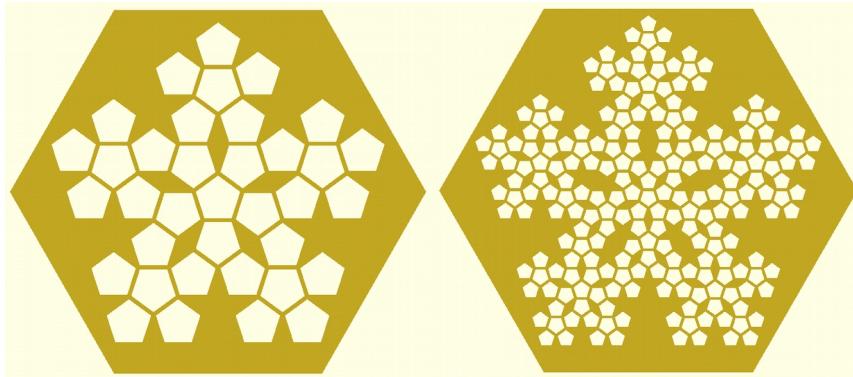
```
n=2;          n=3;          n=3;
polygon=false; polygon=false; polygon=false;
diferenza=0;  differenza=0;  differenza=1;
```



47- Pentaplexity

```
axiom="F++F++F++F++F";  
rules=["F=F++F++F+++++F-F++F"];  
angle=36;
```

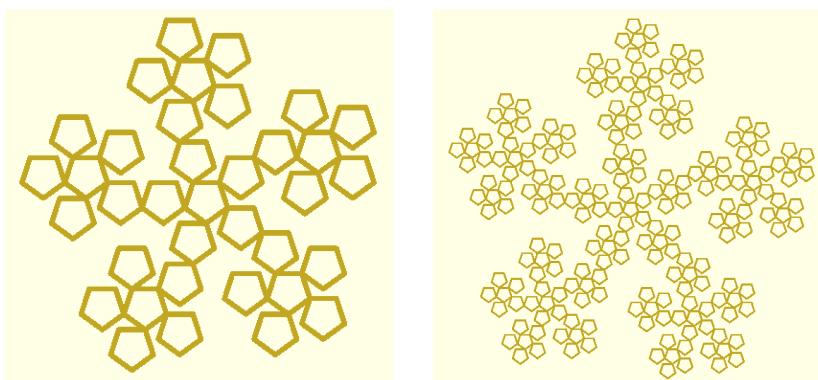
n=2; n=3;
polygon=false; polygon=false;
differenza=0; differenza=0;



48- pentadendrite (not hexagon)

```
axiom="F-F-F-F-F";  
rules=["F=F-F-F++F+F-F"];  
angle=72;
```

n=2; n=3;
hexagon=false; hexagon=false;

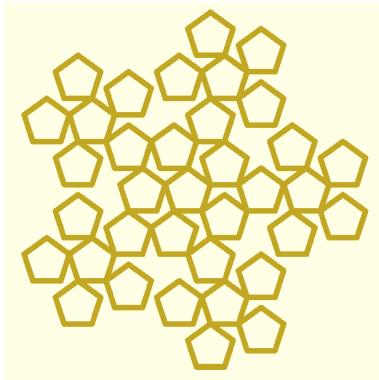


49- McWorter's Pentigree (not hexagon)

```
axiom="F++F++F++F++F";
rules=["F=+F++F----F--F++F++F-"];
angle=36;
```

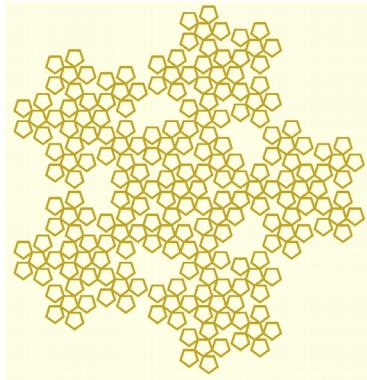
n=2;

hexagon=false;



n=3;

hexagon=false;



50- Penrose

```
axiom="[7]++[7]++[7]++[7]++[7]";
rules=["6=81++91----71[-81----61]++", "7=+81--91[--61--71]+", "8=-61++71[+++81++91]-",
"9=--81++++61[+91++++71]--71", "1="];
angle=36;
```

n=3;

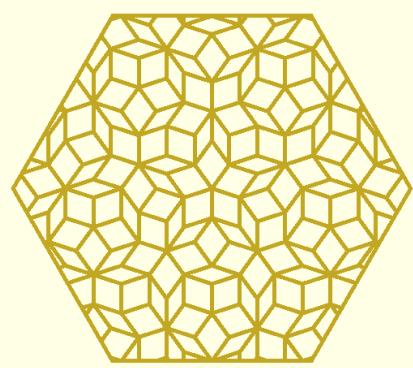
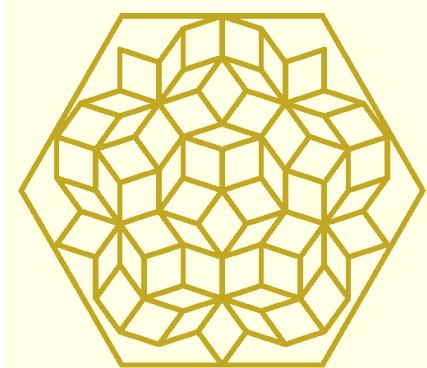
polygon=false;

diferenza=0;

n=4;

polygon=false;

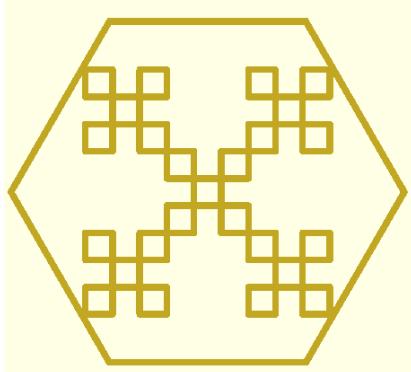
diferenza=0;



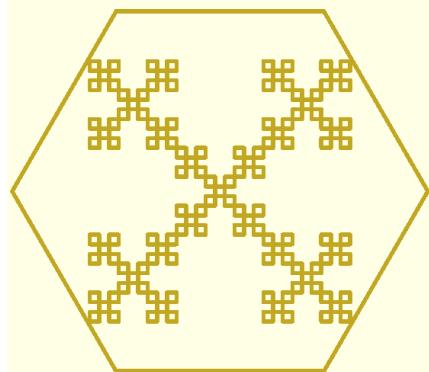
51- A bush

```
axiom="F-F-F-F";
rules=["F=F-F+F+F-F"];
angle=90;
```

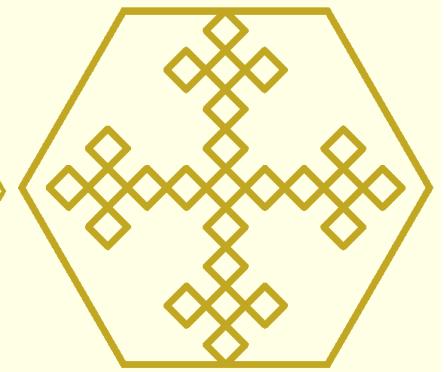
n=2; rot=0;
polygon=false;
diferenza=0;



n=3; rot=0;
polygon=false;
diferenza=0;



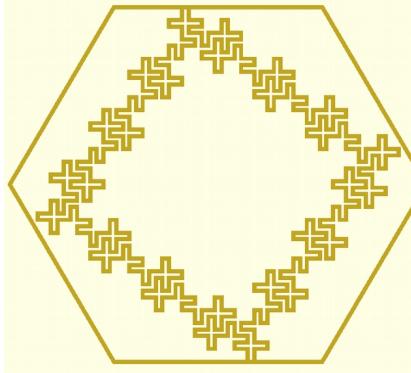
n=2; rot=45;
polygon=false;
diferenza=0;



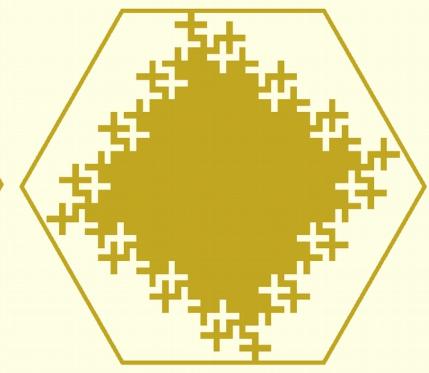
52- X-border - Joined Cross Curves

```
axiom="Z+Z+Z+Z";
rules=["F=","X=FX+FX+FXFY-FY-","Y=+FX+FXFY-FY-FY","Z=XYYXYXY"];
angle=90;
```

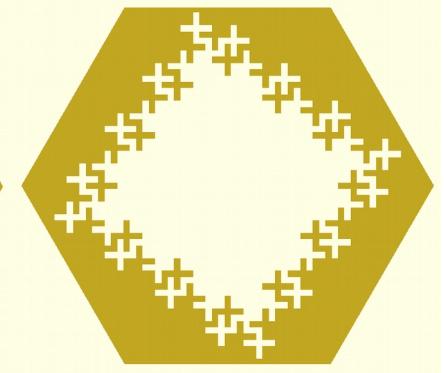
n=3;
polygon=false;
diferenza=0;



n=3;
polygon=true;
diferenza=0;



n=3;
polygon=true;
diferenza=1;

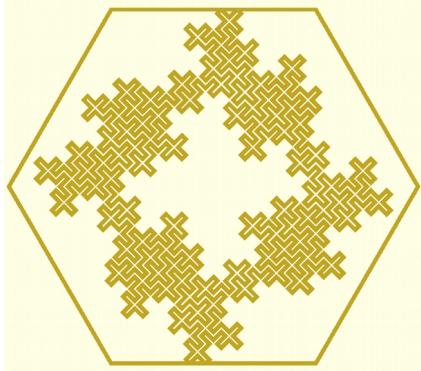


52a- X-border2 - Joined Cross Curves

```
axiom="Z+Z+Z+Z";
rules=["F=","X=FX+FX+FXFY-FY-","Y=+FX+FXFY-FY-FY","Z=XYX"];
angle=90;
```

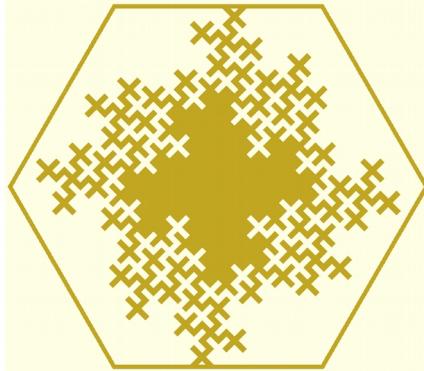
n=4;

polygon=false;
differenza=0;



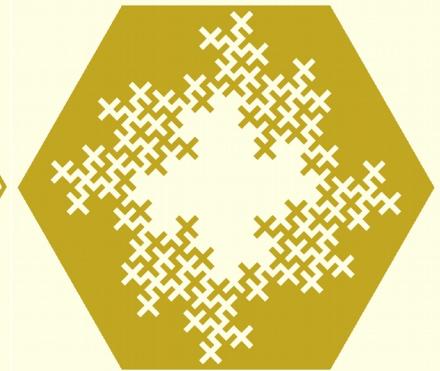
n=4;

polygon=true;
differenza=0;



n=4;

polygon=true;
differenza=1;

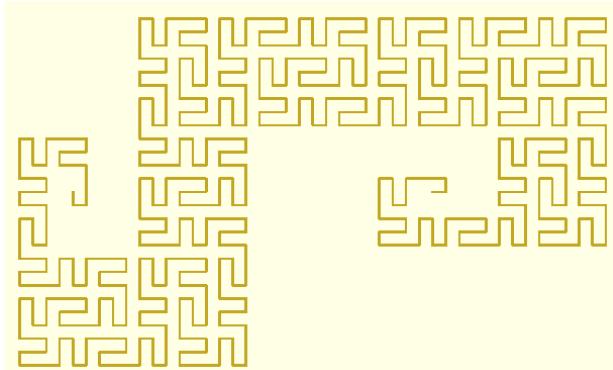


53- Moore (not hexagon)

```
axiom="X";
rules=["F=","X=FX+FX+FXFYFX+FXFY-FY-FY-","Y=+FX+FX+FXFY-FYFXFY-FY-FY"];
angle=90;
```

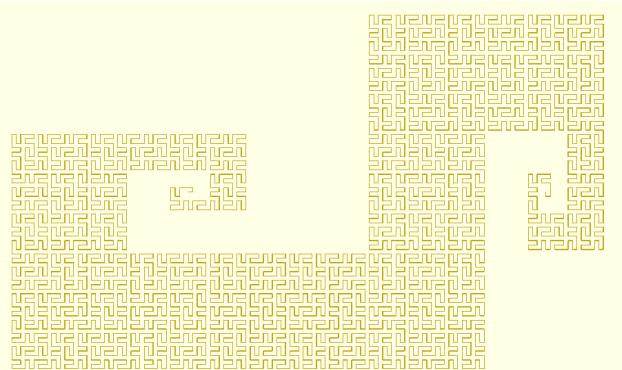
n=3;

hexagon=false;



n=4;

hexagon=false;

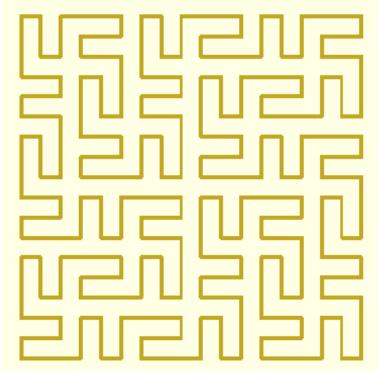


54- Moore square (not hexagon)

```
axiom="Y-Y-Y-Y";
rules=["F=", "X=FX+FX+FXFYFX+FXFY-FY-FY-", "Y=+FX+FX+FXFY-FYFXFY-FY-FY"];
angle=90;
```

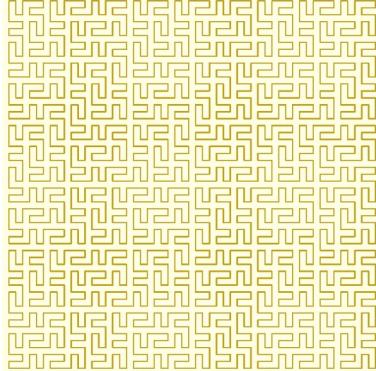
n=2;

hexagon=false;



n=3;

hexagon=false;



55- Pajarita

```
axiom="X++X++X";
rules=["F=", "X=F-F-F+F+FX++F-F-F+F+FX--F-F-F+F+FX"];
angle=60;
```

n=2;

polygon=false;

differenza=0;

n=3;

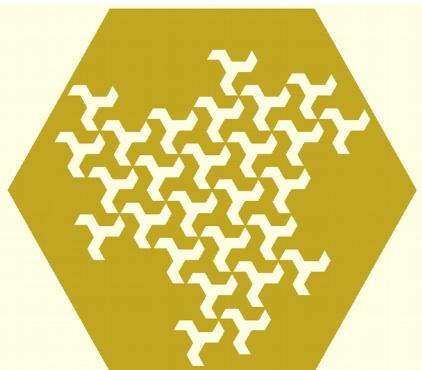
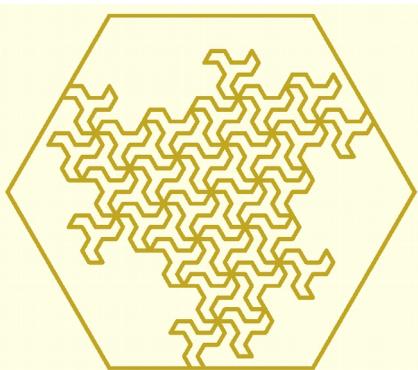
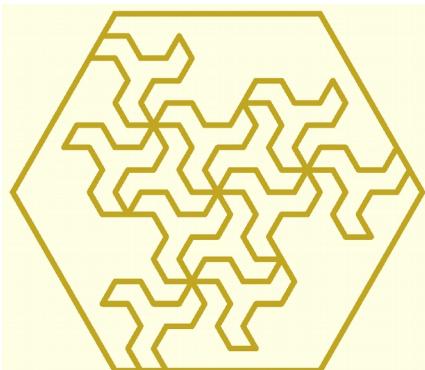
polygon=true;

differenza=0;

n=4;

polygon=true;

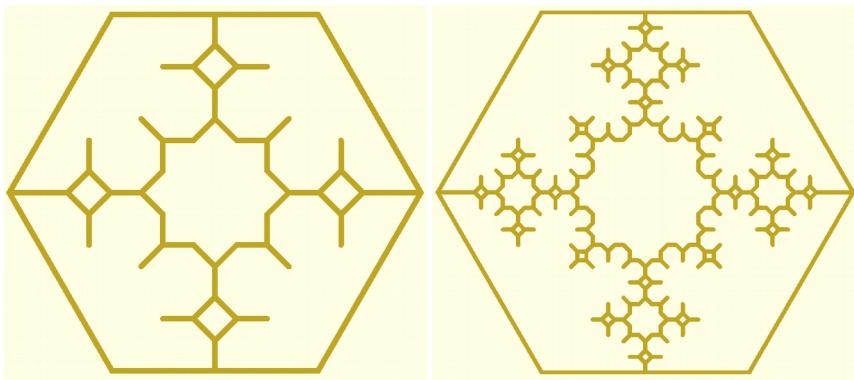
differenza=2;



56- estrela4puntas

```
axiom="F++++F";
rules=["F=F+F+F++++F+F+F"];
angle=45;
```

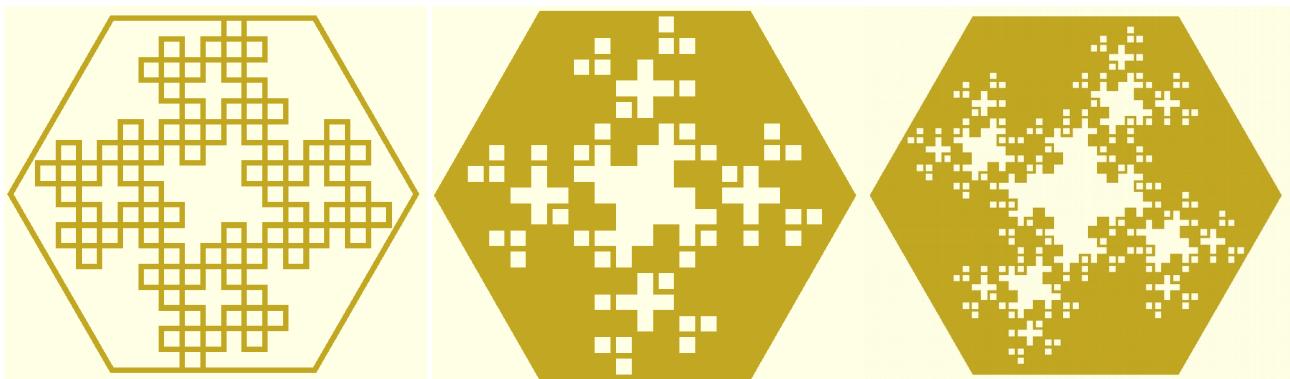
n=2; n=3;
polygon=false; polygon=true;
diferenza=0; differenza=0;



57- Cross2

```
axiom="F+F+F+F";
rules=["F=F+F-F+F+F"];
angle=90;
```

n=3; n=3; n=4;
polygon=false; polygon=true; polygon=true;
diferenza=0; differenza=2; differenza=2;

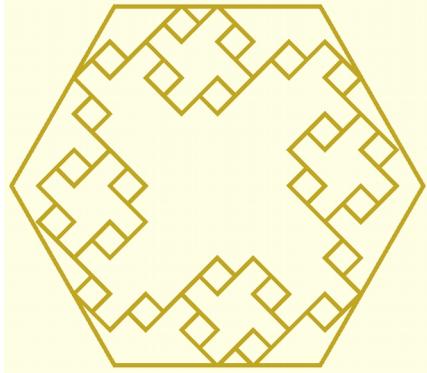


58- Cross3

```
axiom="F-F-F-F";
rules=["F=FF-F-F-F-F-F+F"];
angle=90;
```

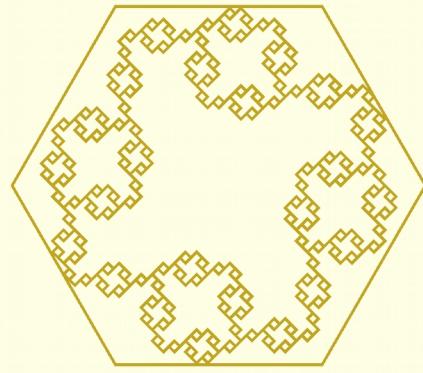
n=2;

polygon=false;
diferenza=0;



n=3;

polygon=true;
diferenza=2;

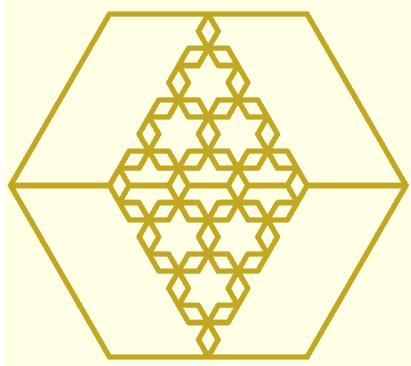


59- Mango Leaf

```
axiom="Y+++Y";
rules=["X={F-F}{F-F}--[--X]{F-F}{F-F}--{F-F}{F-F}--", "Y=F-F+X+F-FY"];
angle=60;
```

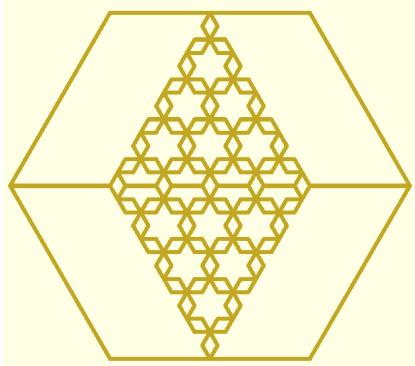
n=4; rot=0;

polygon=false;
diferenza=0;



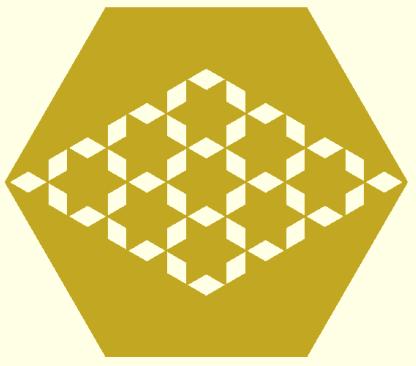
n=3; rot=0;

polygon=true;
diferenza=0;



n=4; rot=90;

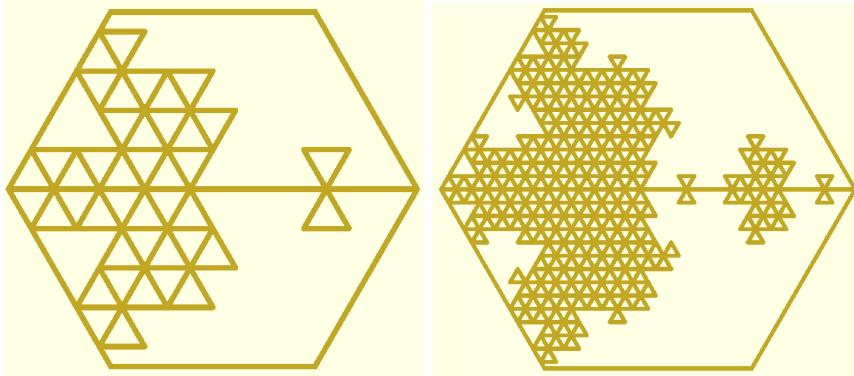
polygon=true;
diferenza=2;



60- Maple-root9

```
axiom="F";
rules=["F=F--F++F++FF--F--F++FF"];
angle=60;
```

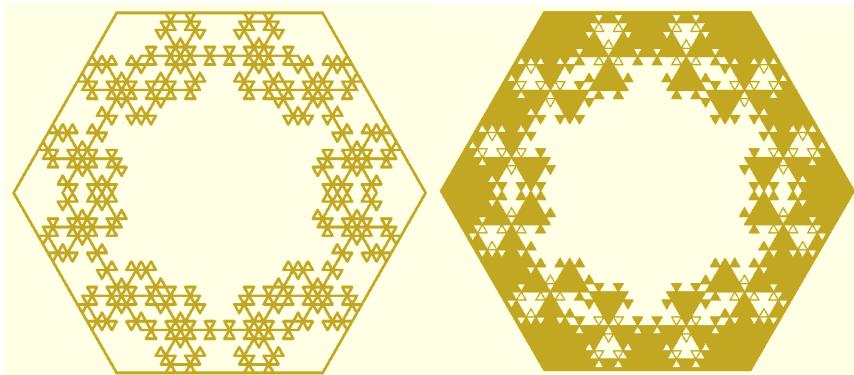
```
n=2;          n=3;
polygon=false; polygon=true;
differenza=0; differenza=0;
```



61- Maple2-root9

```
axiom="F+F+F+F+F+F";
rules=["F=F--F++F++FF--F--F++FF--F++F++FF--F--F++F"];
angle=60;
```

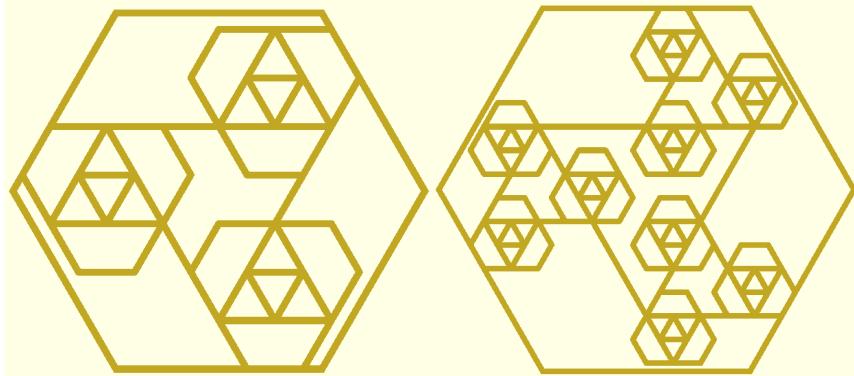
```
n=2;          n=2;
polygon=false; polygon=true;
differenza=0; differenza=2;
```



62- triangulos4-rosas

```
axiom="X";
rules=["X==+FX+FX+FX+FX+FX+", "F=FF"];
angle=60;
```

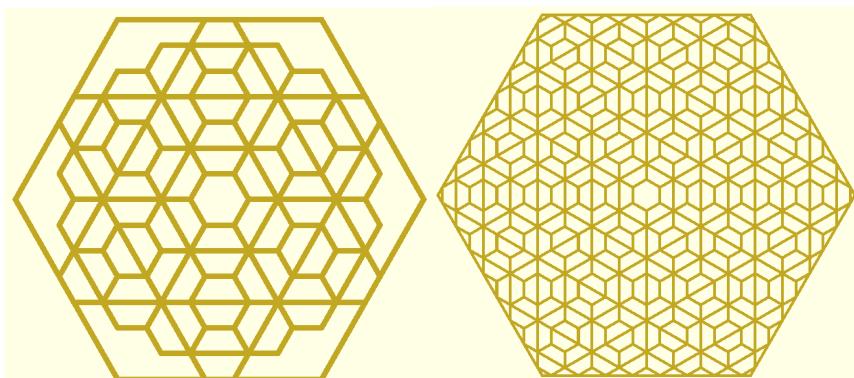
n=3; n=4;
polygon=false; polygon=false;
diferenza=0; differenza=0;



63- hexagonos1

```
axiom="X";
rules=["X==+XF+XF+XF+XF+XF+", "F=FF"];
angle=60;
```

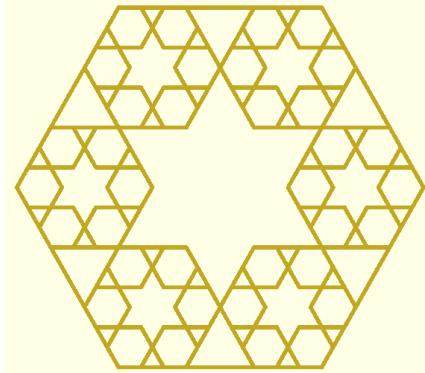
n=3; rot=0; n=4; rot=30;
polygon=false; polygon=false;
diferenza=0; differenza=0;



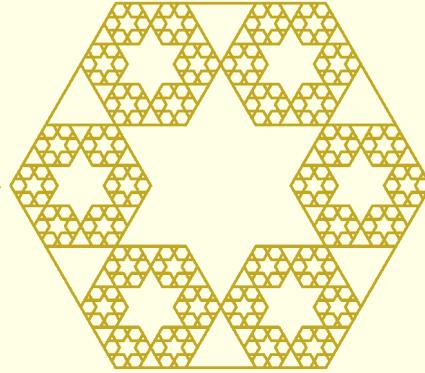
64- hexagonos2-estrelas

```
axiom="X";
rules=["X==FX+FX+FX+FX+FX+FX", "F=FFF"];
angle=60;
```

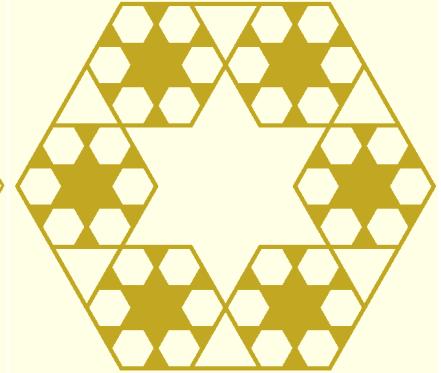
n=3;
polygon=false;
diferenza=0;



n=4;
polygon=false;
diferenza=0;



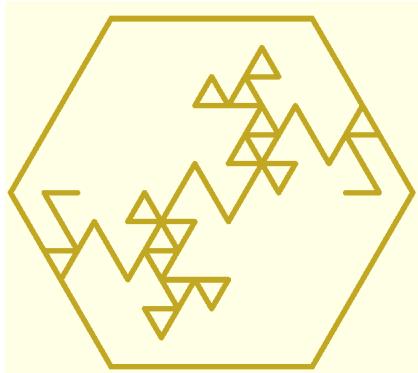
n=3;
polygon=false;
diferenza=2;



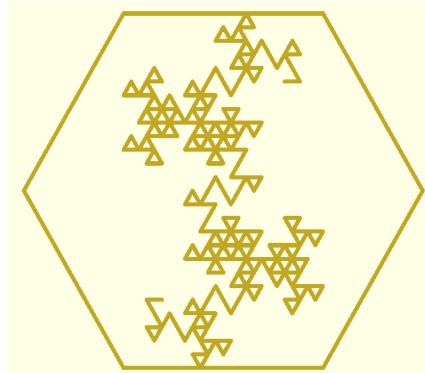
65- triángulos1-root4

```
axiom="F";
rules=["F=F++FF--F"];
angle=60;
```

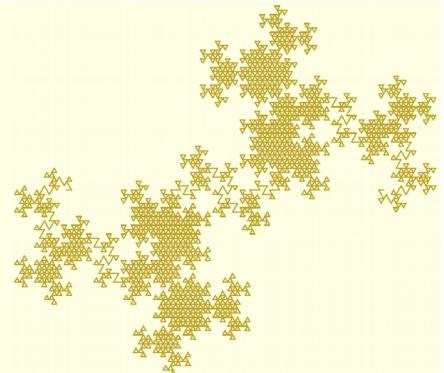
n=3;
polygon=false;
diferenza=0;



n=4;
polygon=false;
diferenza=0;



n=6;
hexagon=false;

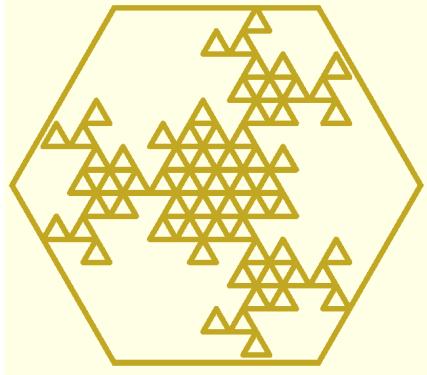


66- triángulos1a-root4

```
axiom="F++F++F";
rules=["F=F++FF--F"];
angle=60;
```

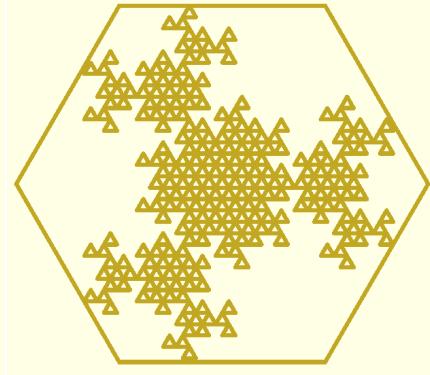
n=3;

polygon=false;
diferenza=0;



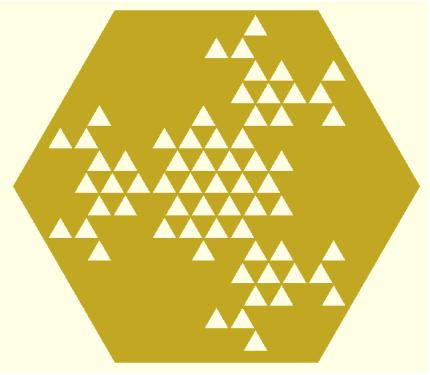
n=4;

polygon=false;
diferenza=0;



n=3;

polygon=false;
diferenza=2;

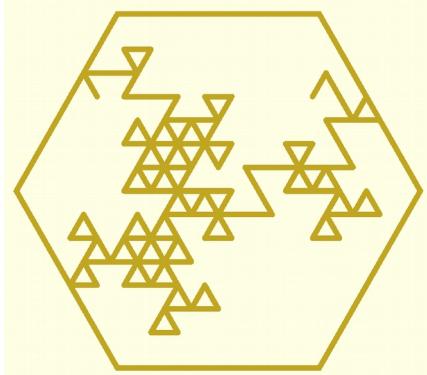


67- triángulos2-root4

```
axiom="X";
rules=["X=-FYFX++FYFX-","Y=+YFXF--YFXF+", "F= "];
angle=60;
```

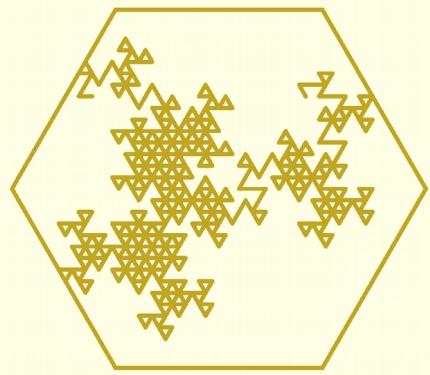
n=4;

polygon=false;
diferenza=0;



n=5;

polygon=false;
diferenza=0;



68- triángulos2a-root4

```
axiom="X++X++X";
rules=["X=-FYFX++FYFX-","Y=+YFXF--YFXF+", "F="];
angle=60;
```

n=3;

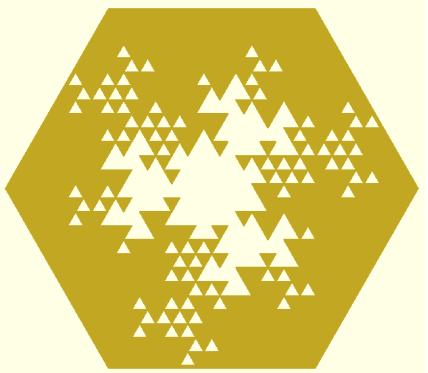
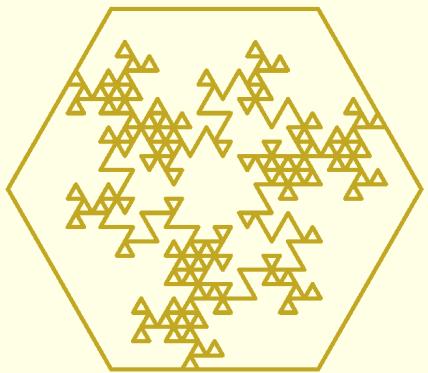
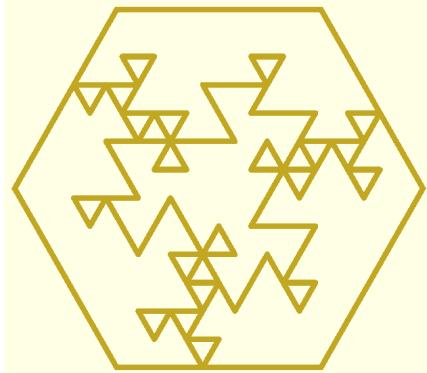
polygon=false;
diferenza=0;

n=4;

polygon=false;
diferenza=0;

n=4;

polygon=false;
diferenza=2;



69- 5_dragon-root5

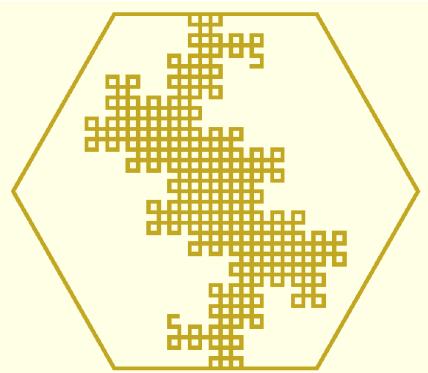
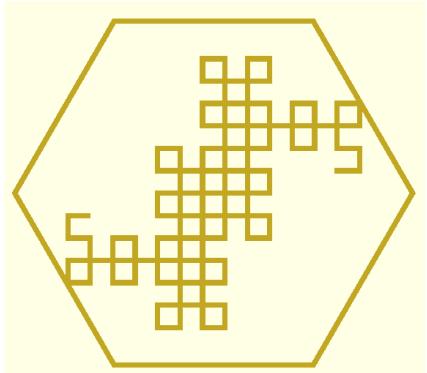
```
axiom="F";
rules=["F=F+F+F-F-F"];
angle=90;
```

n=3;

polygon=false;
diferenza=0;

n=4;

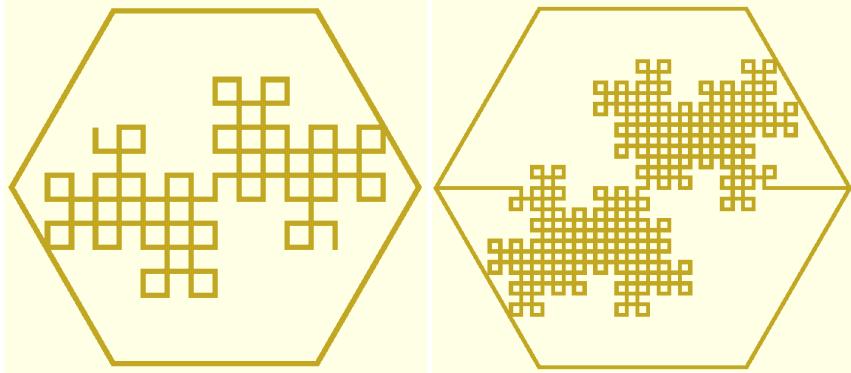
polygon=false;
diferenza=0;



70- Pinched 5_dragon -root5

```
axiom="+X";
rules=["X=YF+YF+YF-YF-YF", "Y=XF-XF-XF+XF+XF" , "F="];
angle=90;
```

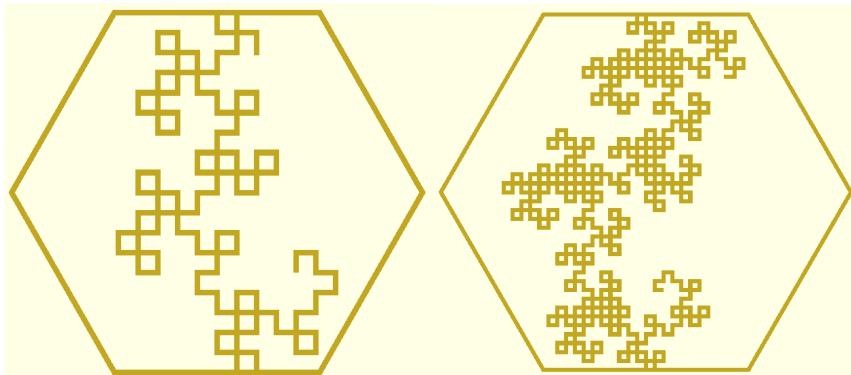
```
n=3;          n=4;
polygon=false; polygon=false;
diferenza=0;  differenza=0;
```



71- 5_Crazy dragon

```
axiom="X";
rules=["X=-XF+YF-XF+YF+XF", "Y=FY-FX-FY+FX-FY+", "F="];
angle=90;
```

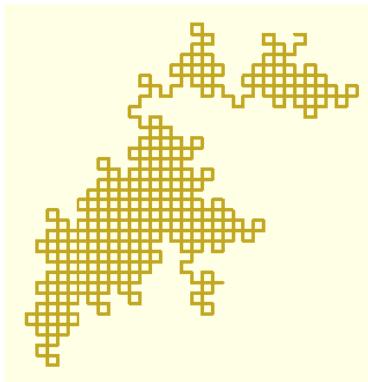
```
n=3;          n=4;
polygon=false; polygon=false;
diferenza=0;  differenza=0;
```



72-5_Pine (not hexagon)

```
axiom="X";
rules=["X=-YF-XF-YF+XF-YF","Y=FX+FY-FX+FY+FX+", "F= "];
angle=90;

n=4;          n=5;
hexagon=false; hexagon=false;
```



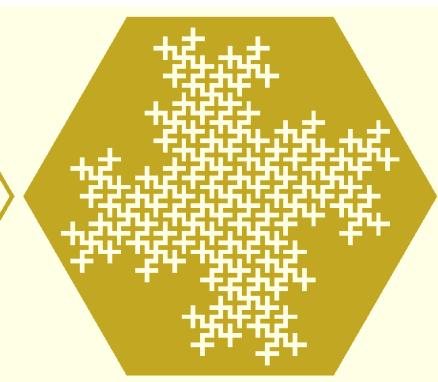
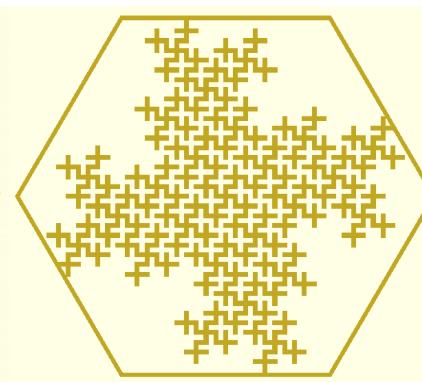
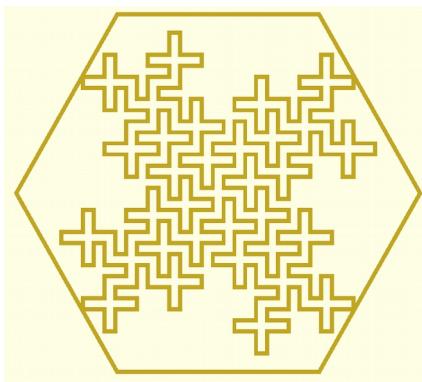
73- 5_Jaggy-Cross2

```
axiom="X+X+X+X";
rules=["X=-YF-YFXF+XF+XF","Y=FY-FY-FYFX+FX+", "F= "];
angle=90;
```

n=3;
polygon=false;
diferenza=0;

n=4;
polygon=true;
diferenza=0;

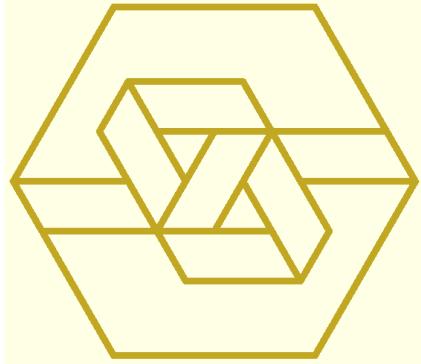
n=4;
polygon=true;
diferenza=1;



74- Lazo

```
axiom="F";
rules=["F=FF-F-"];
angle=60;
```

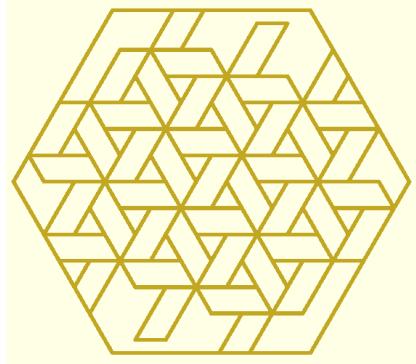
n=4;
polygon=false;
diferenza=0;



n=6;
polygon=false;
diferenza=0;



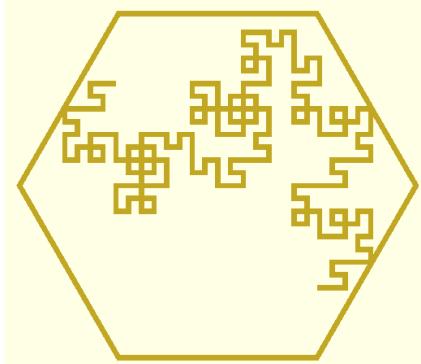
n=8;
polygon=false;
diferenza=2;



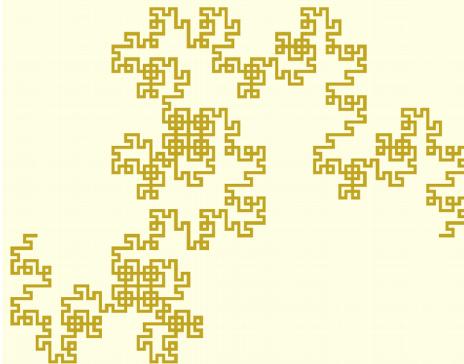
75- BrainDragon variant -root8

```
axiom="X";
rules=["X=XFXF+XF+YF-XF-YF", "Y=FX+FY+FX-FY-FYFY", "F= "];
angle=90;
```

n=3;
polygon=false;
diferenza=0;



n=4;
hexagono=false;



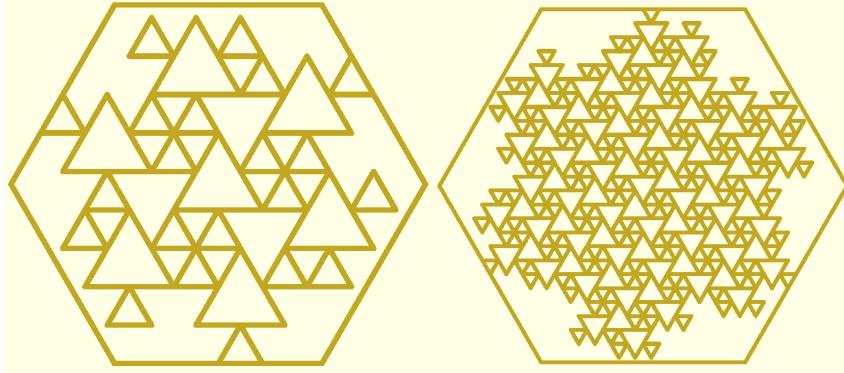
76- triangular grid - root7

```

axiom="X--X--X";
rules=[ "X=-YF++XF--YF++XFXF++YF--XF-", "Y=+YF++XF--YFYF--XF++YF--XF+", "F=" ];
angle=60;

```

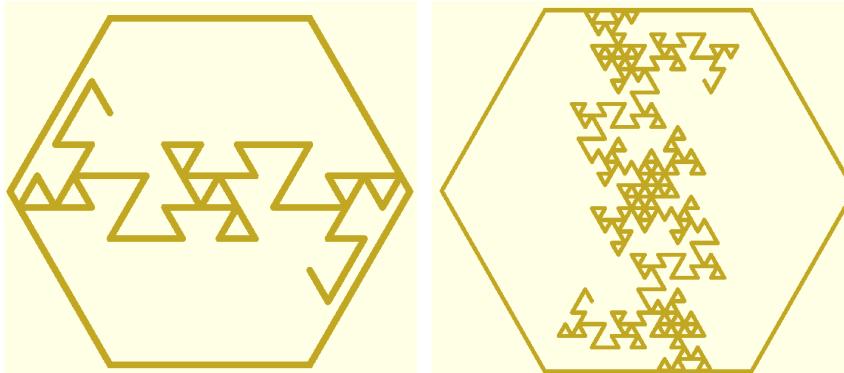
n=2;	n=3;
polygon=false;	polygon=false;
differenza=0;	differenza=0;



77- sym_7_1-root7

```
axiom="X";
rules=["X=FX++FXFY++FY--FXFX--FX","Y=FX++FXFX++FY--FYFX--FX", "F="];
angle=60;
```

n=2;	n=3;
polygon=false;	polygon=false;
differenza=0;	differenza=0;



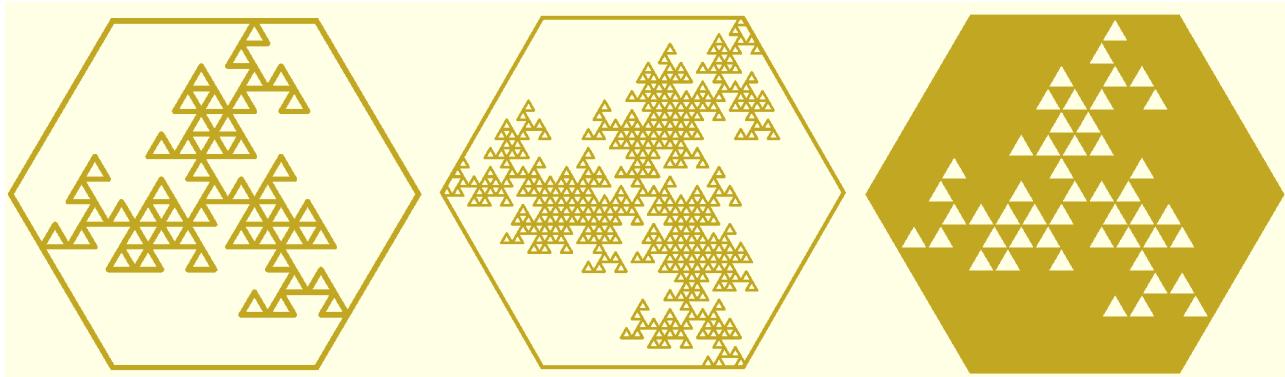
77a- sym_7_2-root7

```
axiom="X++X++X";  
rules=["X=FX++FXFY++,FY--FXFX--FX","Y=FX++FXFX++,FY--FYFX--FX", "F= "];  
angle=60;
```

n=2;
polygon=false;
differenza=0;

n=3;
polygon=false;
differenza=0;

n=2;
polygon=false;
differenza=2;



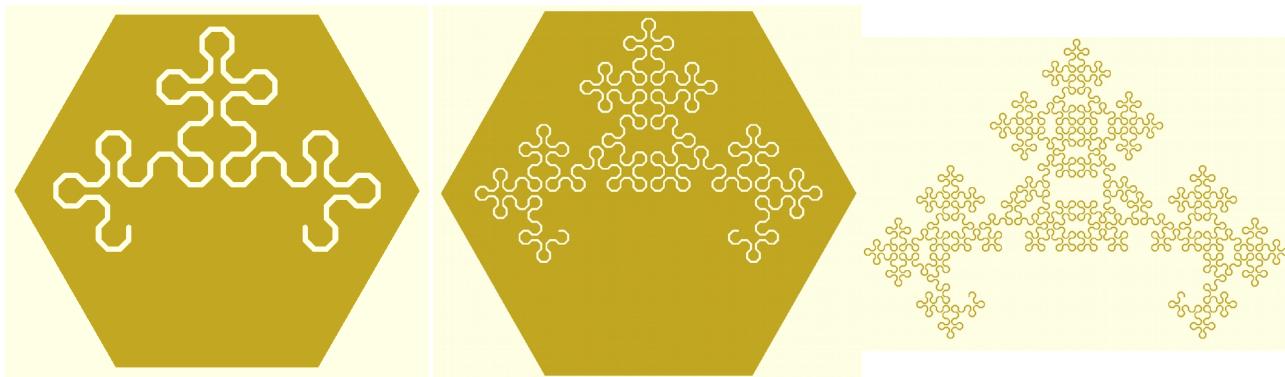
78- 8Filler-root8

```
axiom="X";  
rules=["X=XF+YF+XF+YF+XF","Y=YF-XF-YF-XF-YF", "F= "];  
angle=45;
```

n=3;
polygon=false;
differenza=1;

n=4;
polygon=false;
differenza=1;

n=5;
hexagono=false;

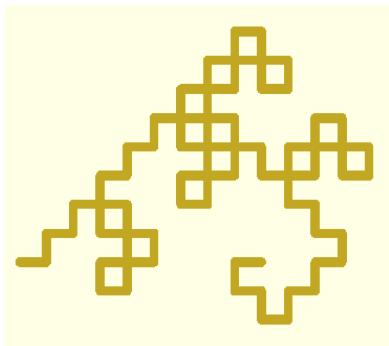


79- Dragon-root9 (not hexagon)

```
axiom="X";
rules=["X=-XF+YF+XF-YF+XF+YF-XF+YF-XF-","Y=+FY+FX-FY+FX-FY-FX+FY-FX-FY+","F= "];
angle=90;
```

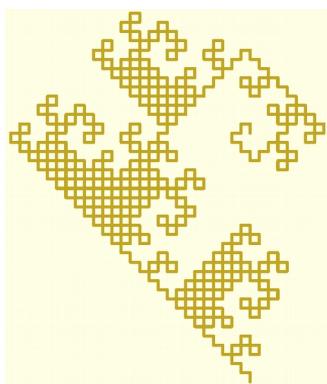
n=2;

hexagon=false;



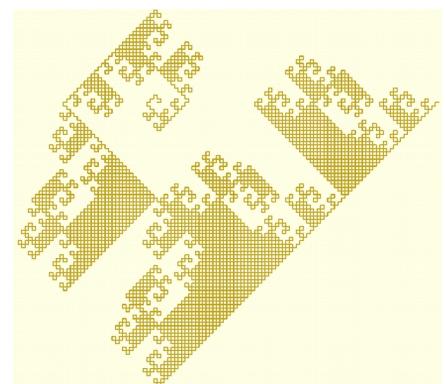
n=3;

hexagono=false;



n=4;

hexagono=false;

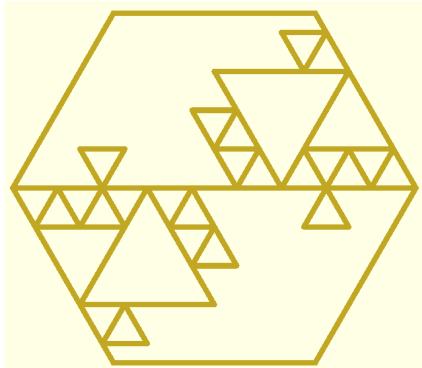


80- Triángulos-root9

```
axiom="F---F";
rules=["F=F--F++F++F--FF"];
angle=60;
```

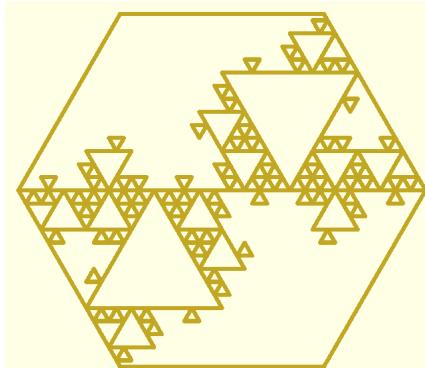
n=2;

polygon=false;
diferenza=0;



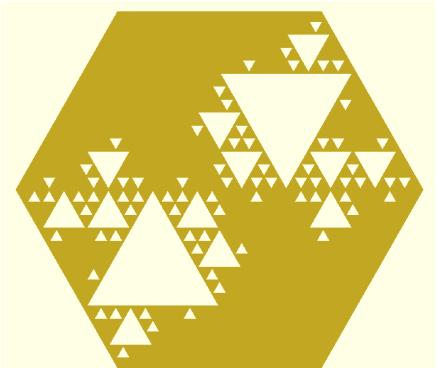
n=3;

polygon=false;
diferenza=0;



n=3;

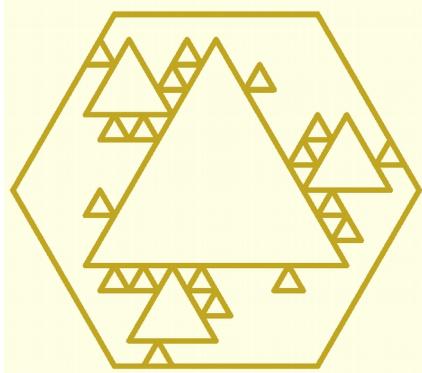
polygon=false;
diferenza=2;



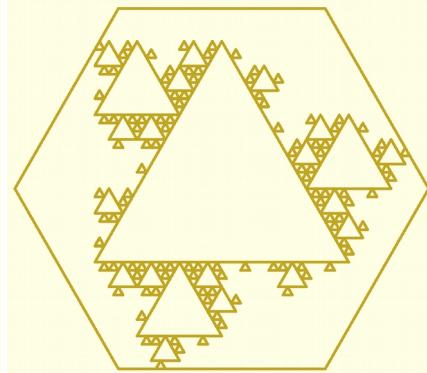
81- Triángulos2-root9

```
axiom="F++F++F";
rules=["F=F--F++F++F--FF"];
angle=60;
```

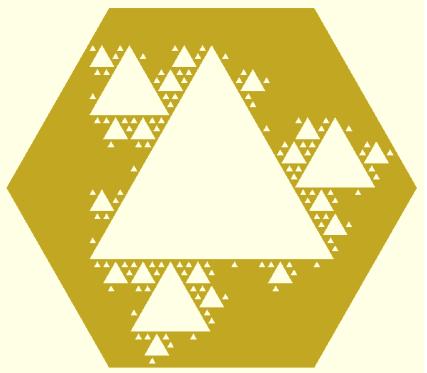
n=2;
polygon=false;
diferenza=0;



n=3;
polygon=false;
diferenza=0;



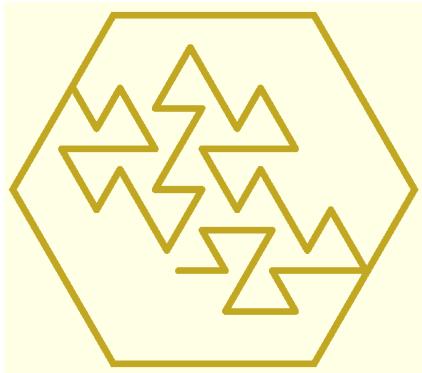
n=3;
polygon=false;
diferenza=2;



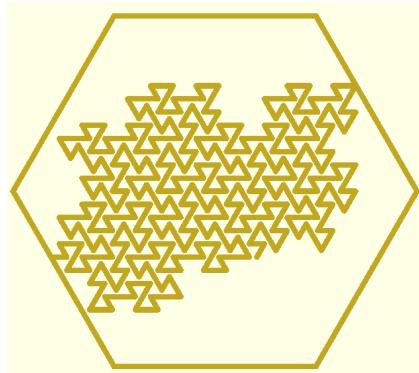
82- Triángulos3-root9

```
axiom="X";
rules=["X=-YFXF++XFYFXF++XFYF--YFXF-", "Y=+YFXF++XFYF--YFXFYF--YFXF+", "F="];
angle=60;
```

n=2;
polygon=false;
diferenza=0;



n=3;
polygon=false;
diferenza=0;



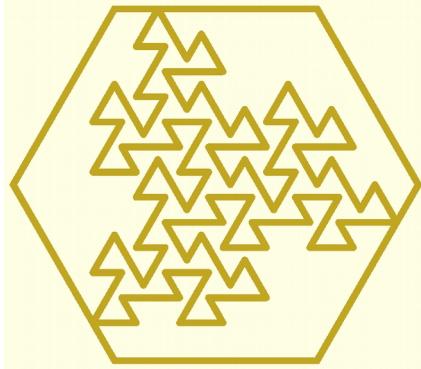
83- Triángulos3a-root9

```
axiom="X++X++X";  
rules=[ "X=-YFXF++XFYFXF++XFYF--YFXF-", "Y=+YFXF++XFYF--YFXFYF--YFXF+", "F="];  
angle=60;
```

n=2;

polygon=false;

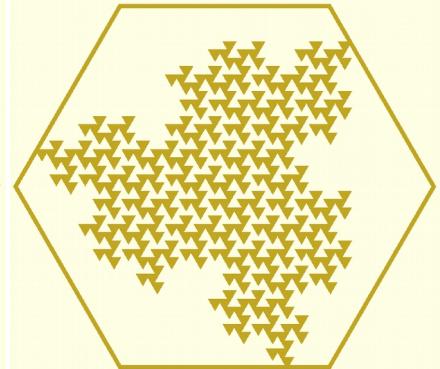
diferenza=0;



n=3;

polygon=true;

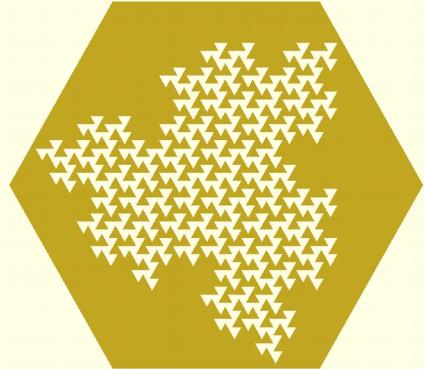
diferenza=0;



n=3;

polygon=true;

diferenza=1;



84- PeanoGosper-root13 (not hexagon)

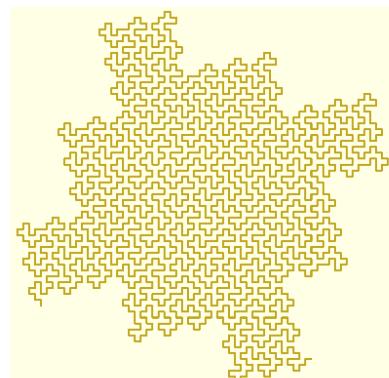
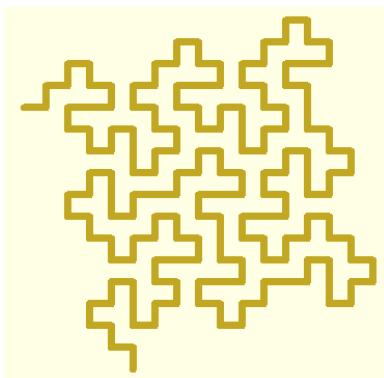
```
axiom="X";  
rules=[ "X=YF+XF-YF-YFXF+XF+YF-XF+XF+YF-XF+YF-XF-", "Y=+YF+XF-YF+XF-YF-YF+FX-YF-YFXF+XF+YF-XF", "F=" ];  
angle=90;
```

n=2;

hexagon=false;

n=3;

hexagono=false;



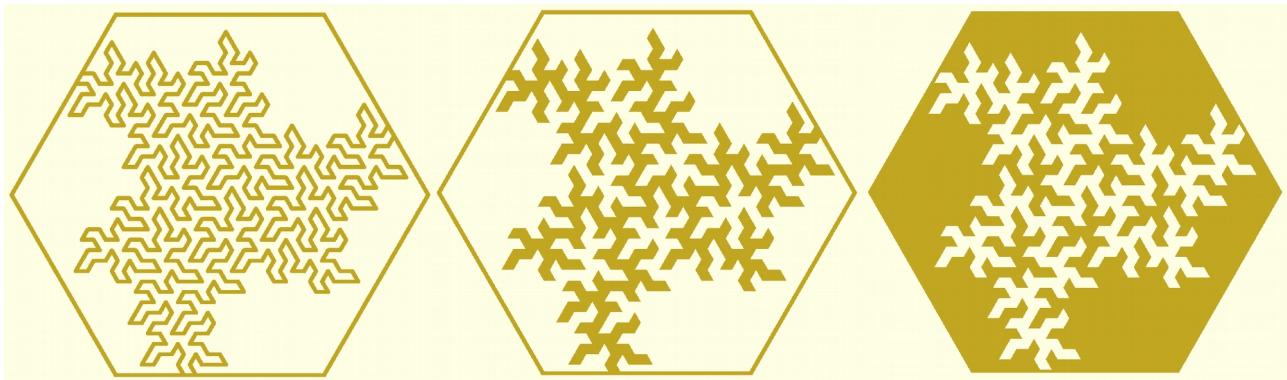
85- Gosper-root13

```
axiom="X++X++X";
rules=[ "X=YF+XF++XF-YF--YF+XFXF++XF+YF-XF+YF--YF-XF-", "Y=+YF+XF++XF-YF+XF-YF--YFYF-XF++XF+YF--YF-XF", "F="];
angle=60;
```

n=2;
polygon=false;
diferenza=0;

n=3;
polygon=true;
diferenza=0;

n=3;
polygon=true;
diferenza=1;



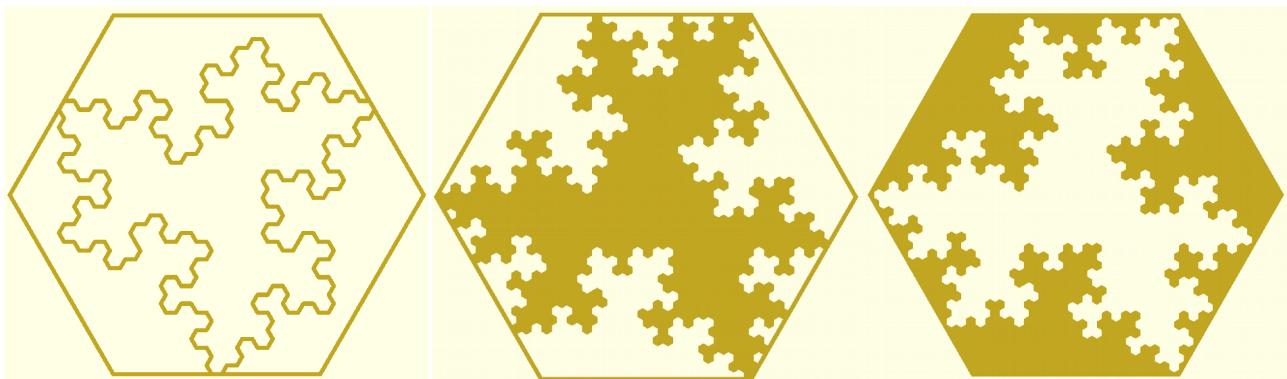
86-fractal1- root16

```
axiom="X++X++X";
rules=[ "X=-YF+XF+XF-", "Y=+FY-FY-FX+", "F="];
angle=60;
```

n=4; rot==0;
polygon=false;
diferenza=0;

n=5; rot==30;
polygon=true;
diferenza=0;

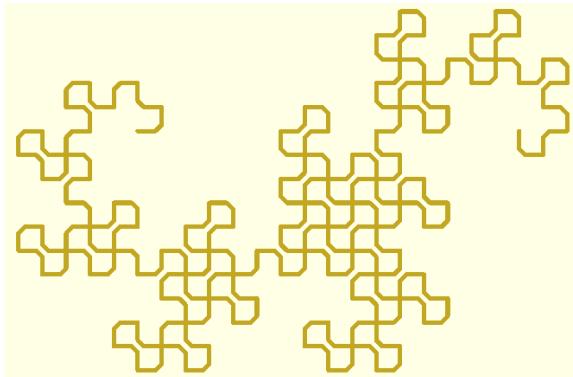
n=5; rot==30;
polygon=true;
diferenza=1;



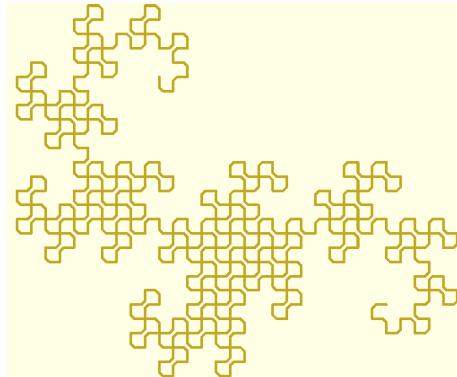
87- dragonLóbulos (not hexagon)

```
axiom="X";
rules=["X==--FXF+F+FYF--","Y==++FXF-F-FYF++", "F= "];
angle=45;
```

```
n=8;
hexagon=false;
```



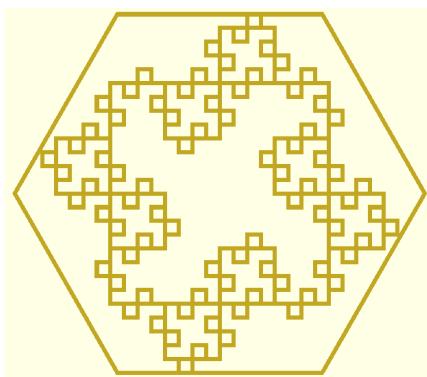
```
n=9;
hexagon=false;
```



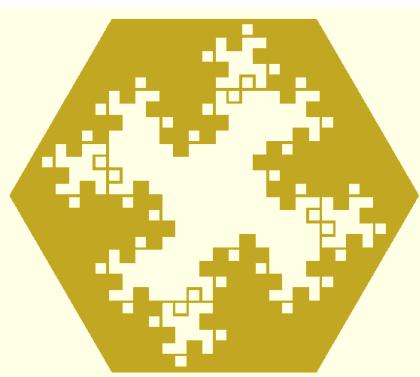
88- carpet6

```
axiom="F-F-F-F";
rules=["F=F-b+F-F-F-Fb-F+b-F+F+Fb+FF","b=" ];
angle=90;
```

```
n=2;
polygon=false;
diferenza=0;
```



```
n=2;
polygon=false;
diferenza=2;
```



89-Peano variacion - root9

```
axiom="F";
rules= ["F=F+F-F-F-G+F+F+F-F", "G=FFF"];
angle=90;
```

```
n=2;
polygon=false;
diferenza=0;
```

```
n=2;
polygon=false;
diferenza=1;
```

```
n=3;
polygon=false;
diferenza=1;
```

