

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 Loeblich](#), 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 saíron fedellando coas regras de L-System.

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

When I found [Hans Loeblich'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 at 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 Loeblich for the code.

Thanks to fractalcurves.com for the inspiration.

Generate: [L_system_100hex.scad](#)

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

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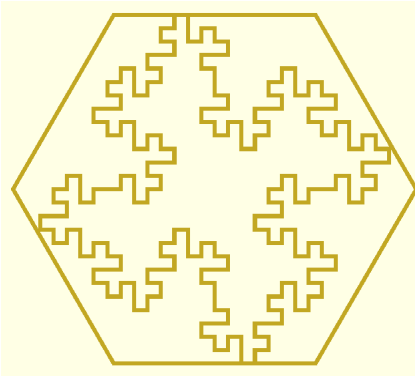
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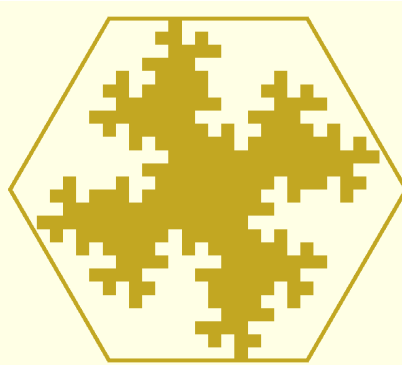
01- Minkowski

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

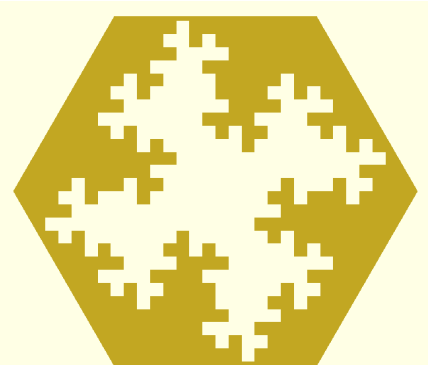
```
n=2;  
polygon=false;  
diferenza=0;
```



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



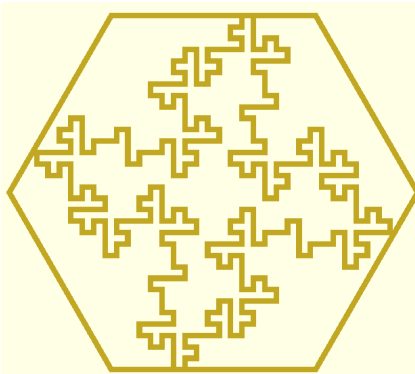
```
n=2;  
polygon=true;  
diferenza=1;
```



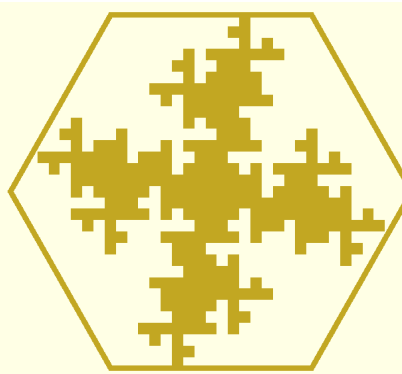
02- quadratic1

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

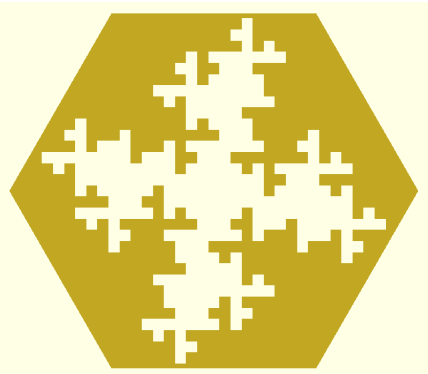
```
n=2;  
polygon=false;  
diferenza=0;
```



```
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;

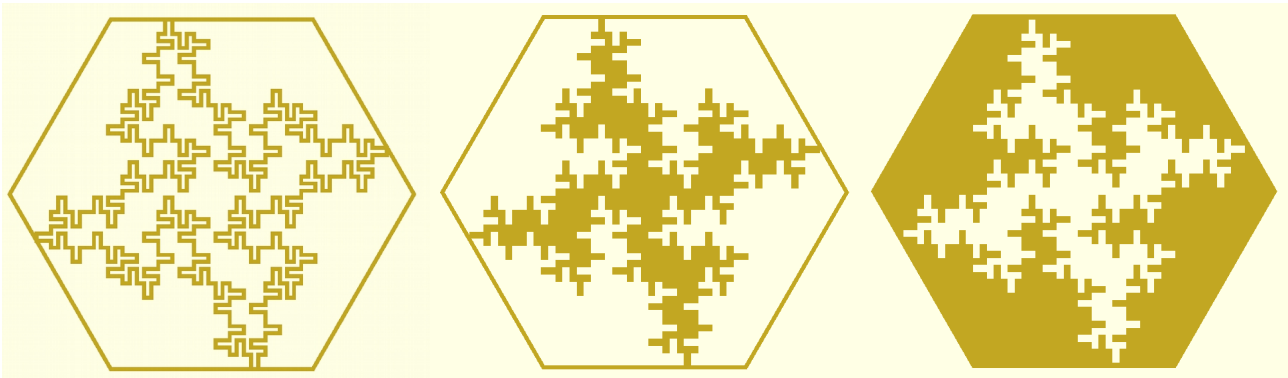
polygon=true;

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;

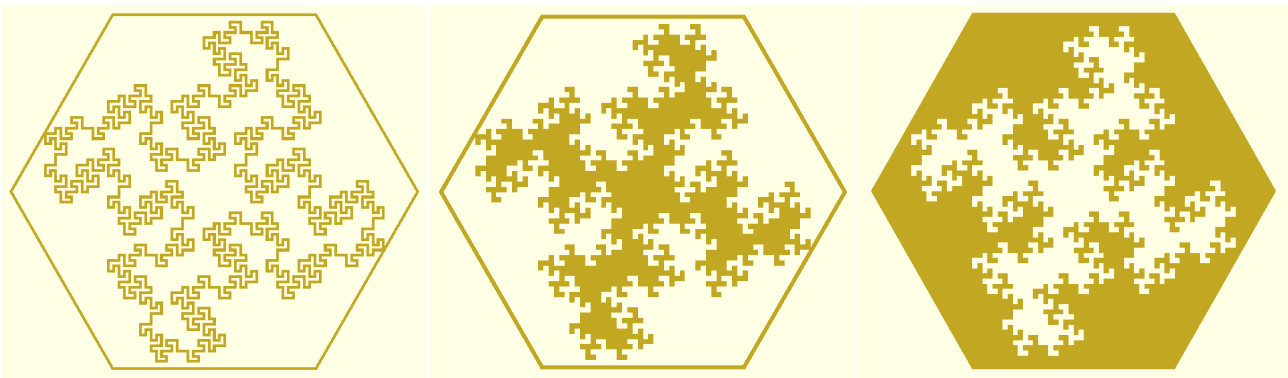
polygon=true;

diferenza=0;

n=2;

polygon=true;

diferenza=1;



05a- 32_SegmentCurve I

axiom="F";

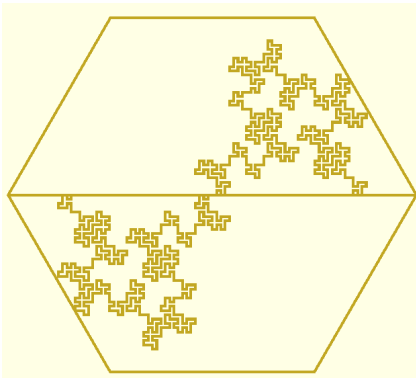
rules=["F=F+F-F-F+F+FF-F+F+FF+F-F-F+FF+FF-F-F+FF-F-F+F+F-F"];

angle=90;

n=2;

polygon=false;

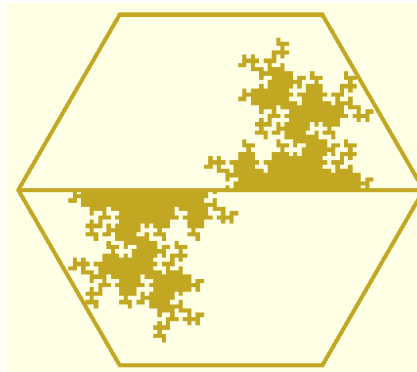
diferenza=0;



n=2;

polygon=true;

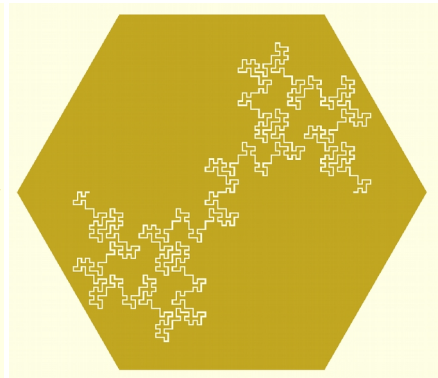
diferenza=0;



n=2;

polygon=false;

diferenza=1;



05b- 32_SegmentCurve II

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

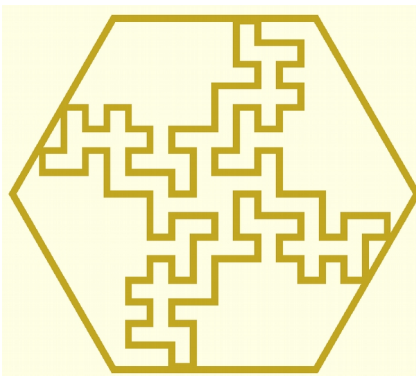
rules=["F=F+F-F-F+F+FF-F+F+FF+F-F-F+FF+FF-F-F+FF-F-F+F+F-F"];

angle=90;

n=1;

polygon=false;

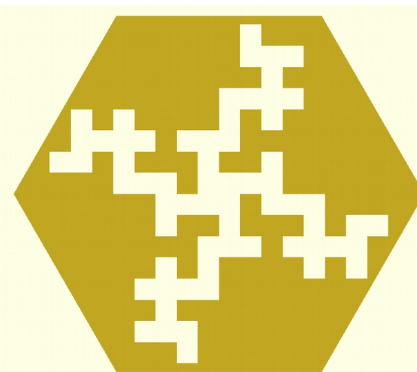
diferenza=0;



n=1;

polygon=true;

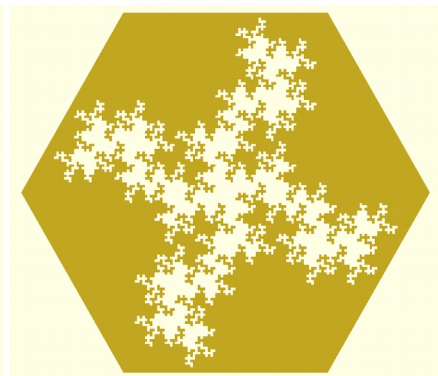
diferenza=1;



n=2;

polygon=true;

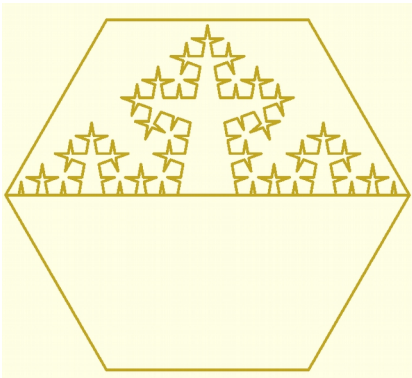
diferenza=1;



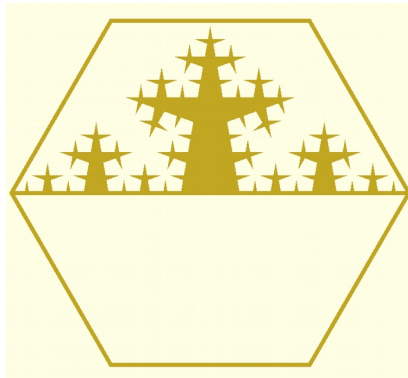
06-CesaroSweepVariant

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

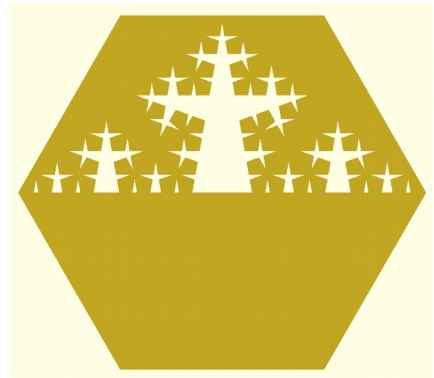
```
n=4;  
polygon=false;  
diferenza=0;
```



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



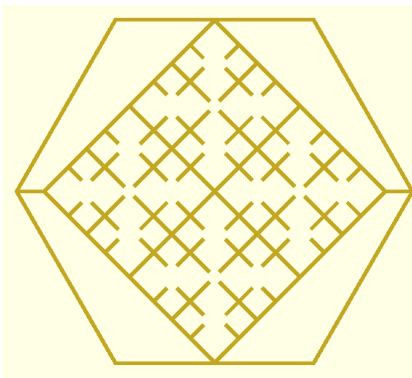
```
n=4;  
polygon=true;  
diferenza=1;
```



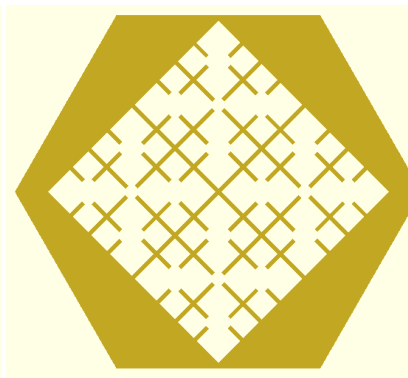
07-CesaroCarpet

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

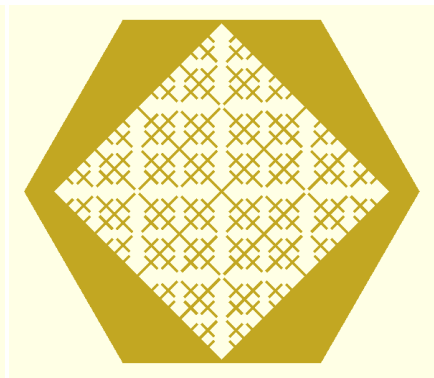
```
n=3;  
polygon=false;  
diferenza=0;
```



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



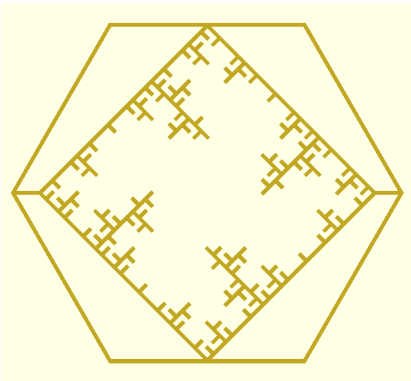
```
n=4;  
polygon=false;  
diferenza=2;
```



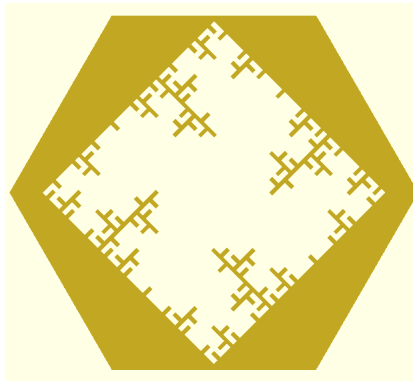
08-icyFractal

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

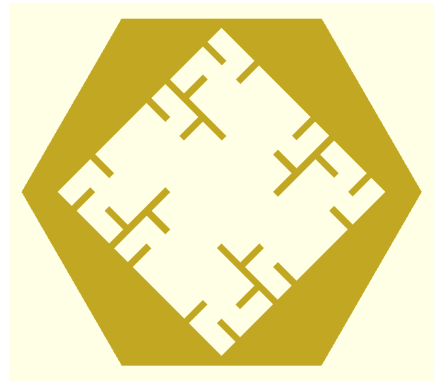
```
n=3;  
polygon=false;  
diferenza=0;
```



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



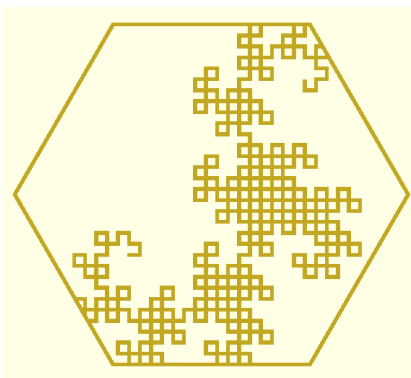
```
n=2;  
polygon=false;  
diferenza=2;
```



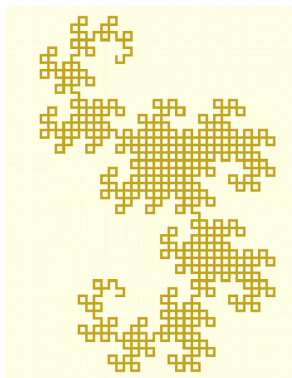
09- Heighway's dragon curve

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

```
n=9;  
hexagono= true;
```



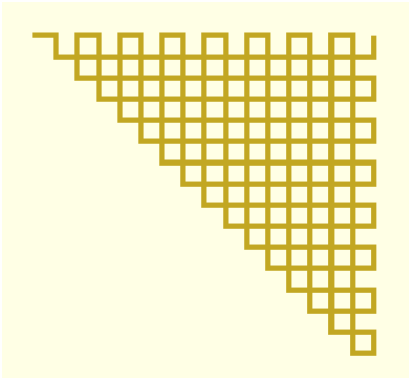
```
n=10;  
hexagono= false;
```



10- Polya Sweep (no hexagon)

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

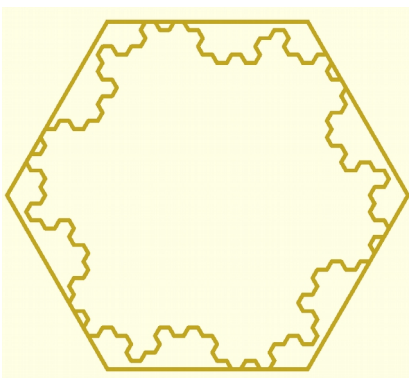
```
n=8;  
hexagono= =false;
```



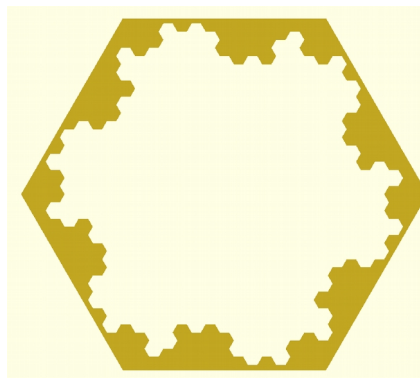
11- hexagonal dragon

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

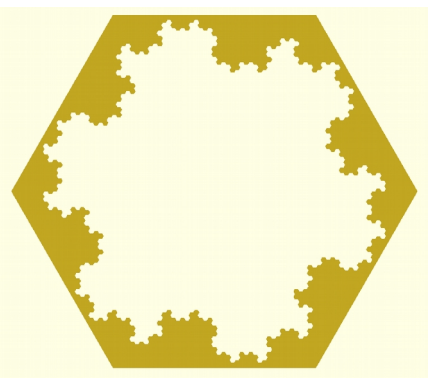
```
n=5;  
polygon=false;  
diferenza=0;
```



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



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



12- hexagonal dragon Estrela

axiom="Z-Z-Z--Z-Z-Z";

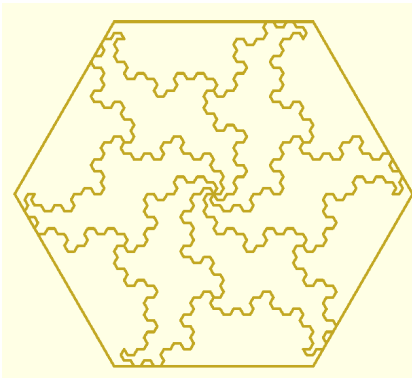
rules=["X=X+YF+", "Y=-FX-Y", "Z=FX+FX"];

angle=60;

n=7;

polygon=false;

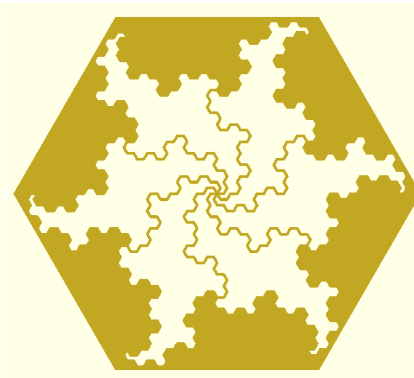
diferenza=0;



n=7;

polygon=true;

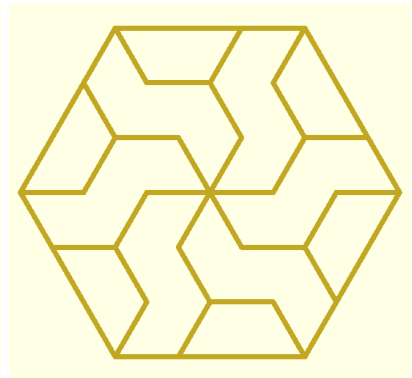
diferenza=2;



n=3;

polygon=true;

diferenza=0



13- twin_dragon

axiom="FX+FX+";

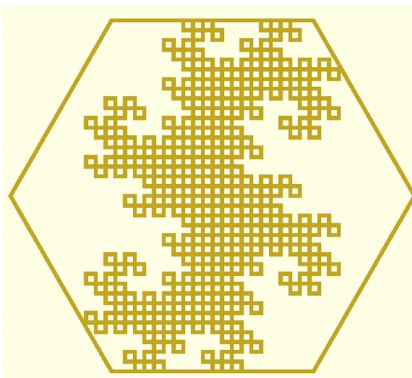
rules=["X=X+YF", "Y=FX-Y"];

angle=90;

n=9;

polygon=false;

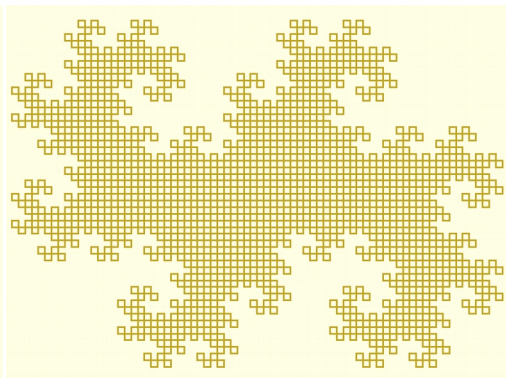
diferenza=0;



n=11;

polygon=false;

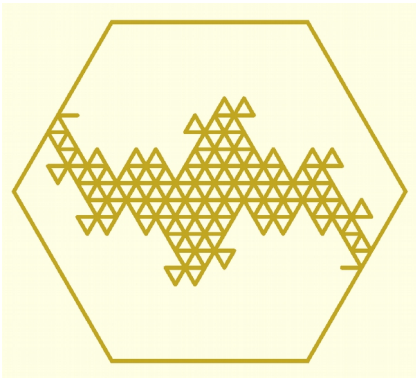
diferenza=0;



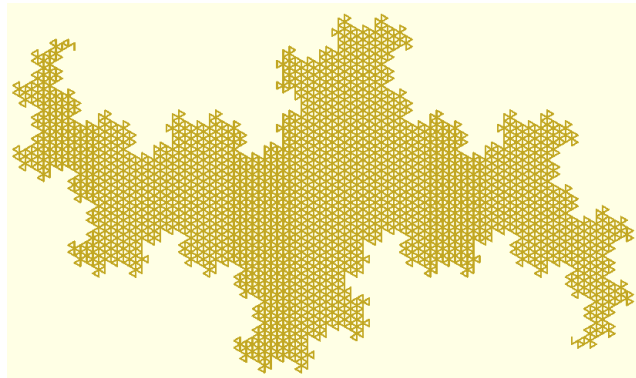
14- terdragon

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

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



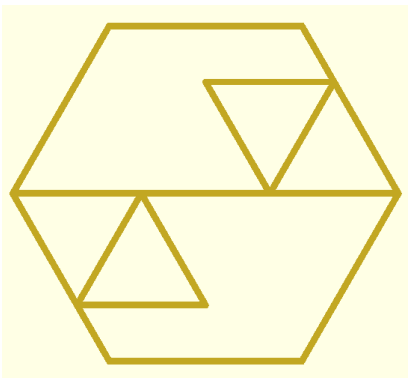
```
n=8;  
polygon=false;  
diferenza=0;
```



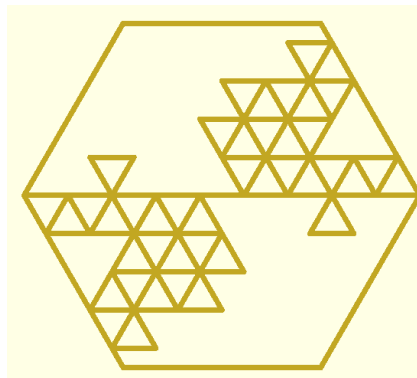
15-inverted_terdragon

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

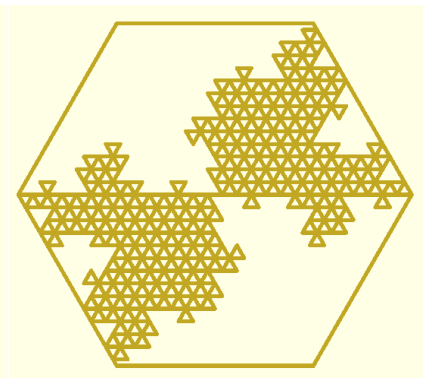
```
n=1;  
polygon=false;  
diferenza=0;
```



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



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



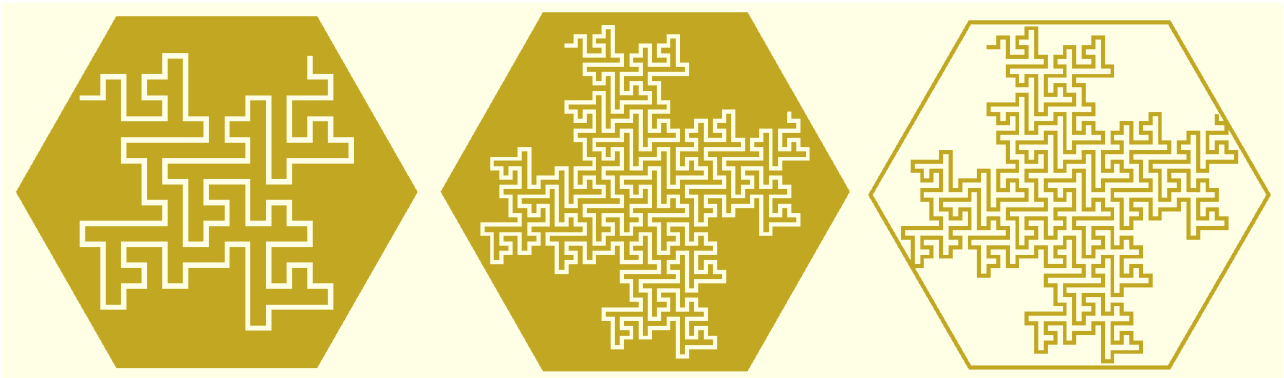
16- Mandelbrot Quartet - root5

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

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

```
n=4;  
polygon=false;  
diferenza=1;
```

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



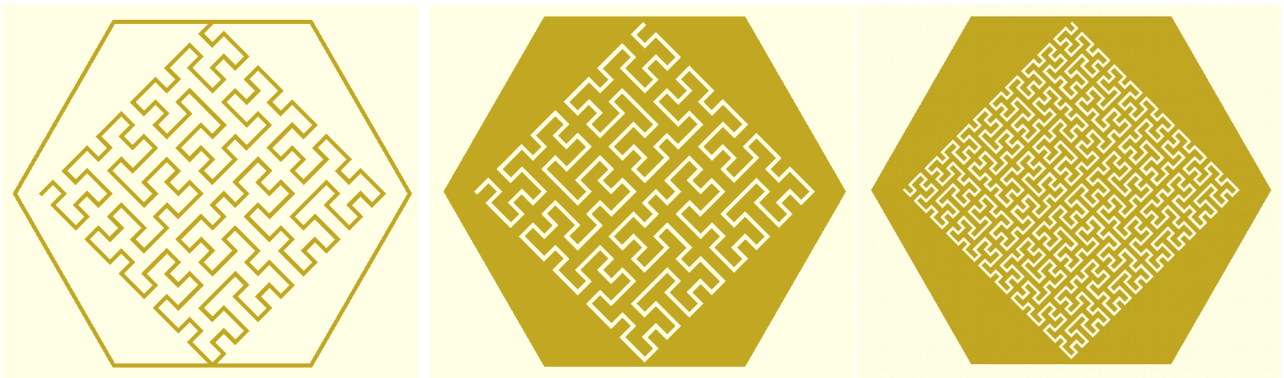
17- Hilbert curve

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

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

```
n=4;  
polygon=false;  
diferenza=1;
```

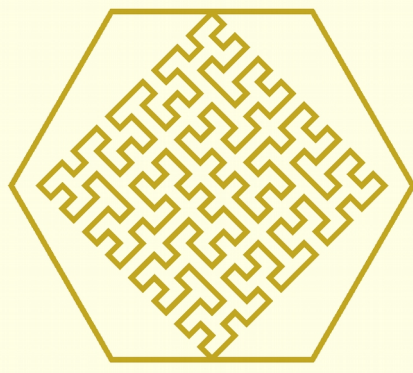
```
n=5;  
polygon=false;  
diferenza=0
```



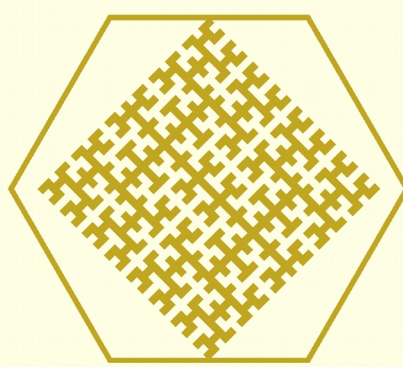
18- Moore curve

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

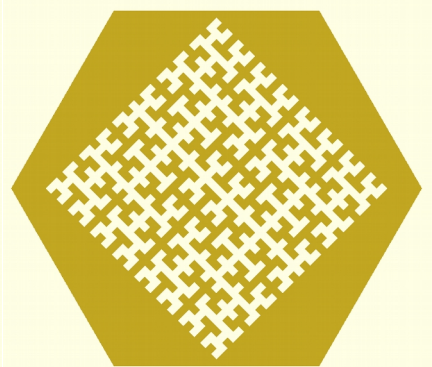
```
n=3;  
polygon=false;  
diferenza=0;
```



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



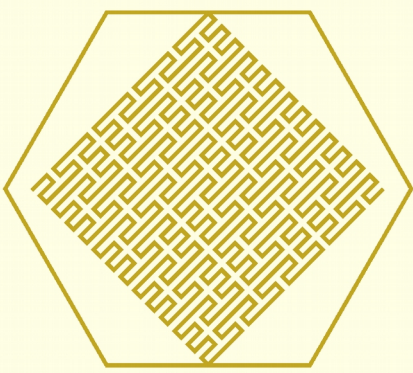
```
n=4;  
polygon=false;  
diferenza=2
```



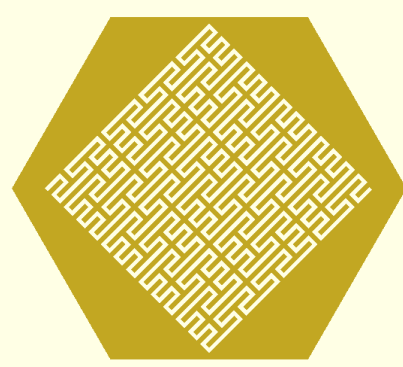
19- Peano curve

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

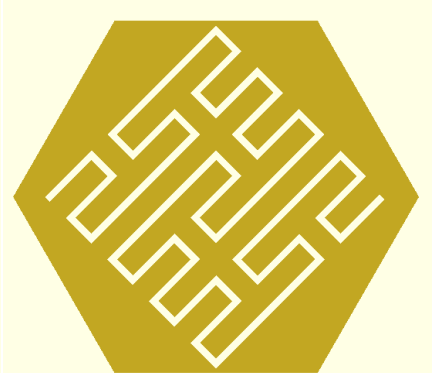
```
n=3;  
polygon=false;  
diferenza=0;
```



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



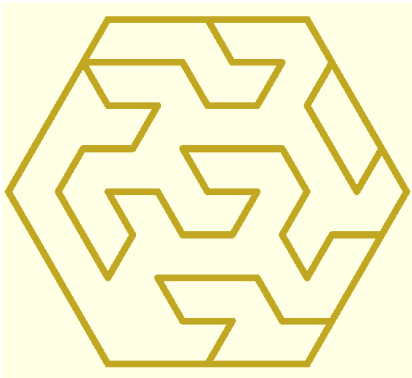
```
n=2;  
polygon=false;  
diferenza=2
```



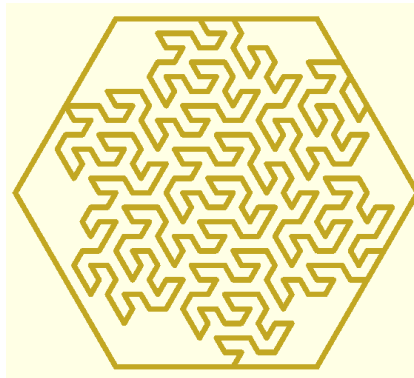
20- Gosper curve

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

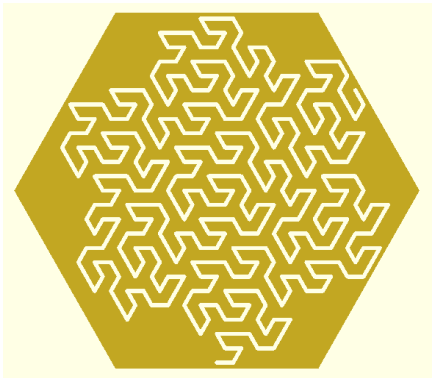
```
n=3;
polygon=false;
diferenza=0;
```



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



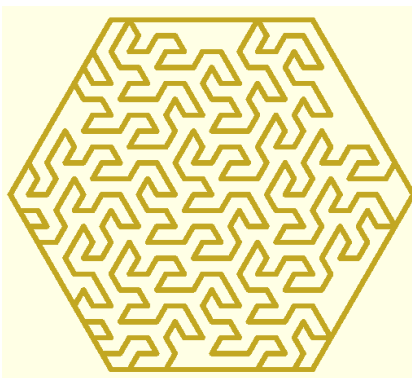
```
n=3;
polygon=false;
diferenza=1
```



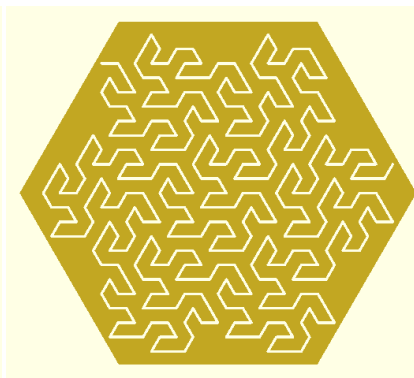
21- inner-flip Gosper curve (REVISAR!!)

```
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;
diferenza=0;
```



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



22- Gosper curve tree

axiom="X--X--X";

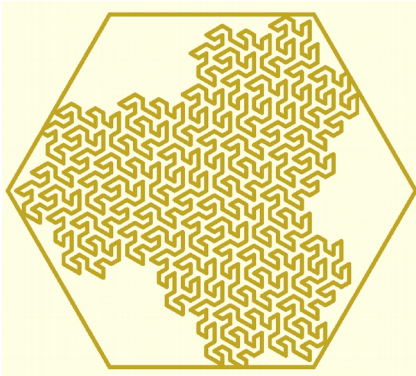
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F="];

angle=60;

n=3;

polygon=false;

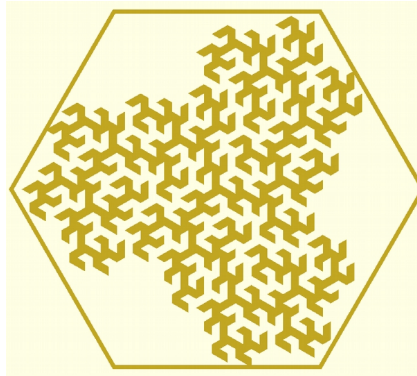
diferenza=0;



n=3;

polygon=true;

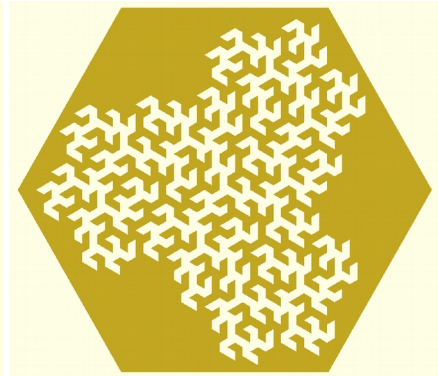
diferenza=0;



n=3;

polygon=true;

diferenza=1



23- Gosper curve star

axiom="X-X-X-X-X";

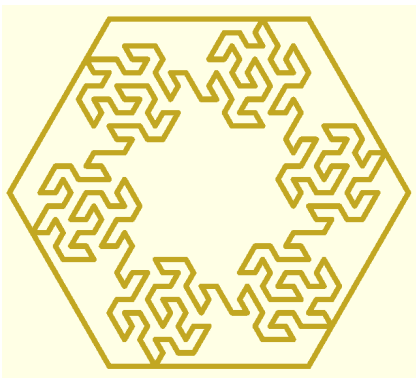
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F="];

angle=60;

n=2;

polygon=false;

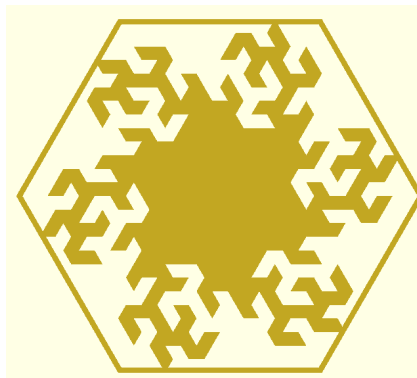
diferenza=0;



n=2;

polygon=true;

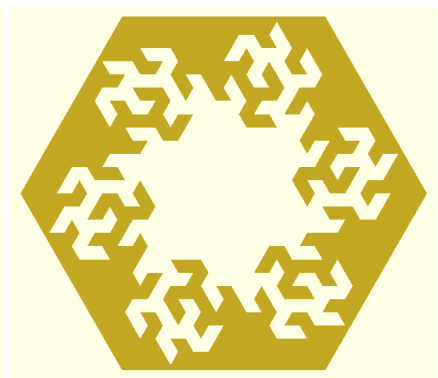
diferenza=0;



n=2;

polygon=true;

diferenza=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;

diferenza=0;

n=3;

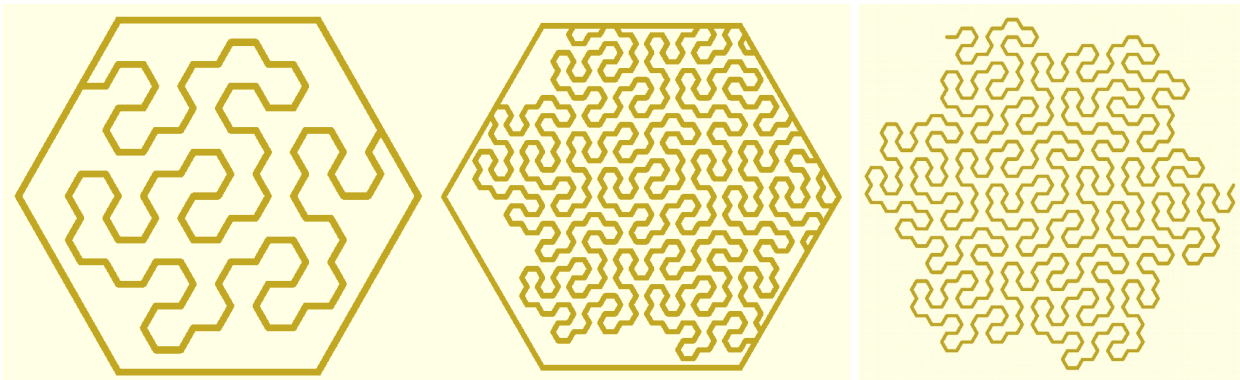
polygon=false;

diferenza=0;

n=3; hexagon=false;

polygon=false;

diferenza=0;



25- Quadratic Gosper

axiom="XF";

rules=["X=XFX-YF-YF+FX+FX-YF-YFFX+YF+FXFX+YF-FXYF-YF-FX+FX+YFYF-", "Y=+FXFX-YF-YF+FX+FX+YF+FX-YFYF-FX-YF+FX+YF-YF-FX+FX+YFY"];

angle=90;

n=2;

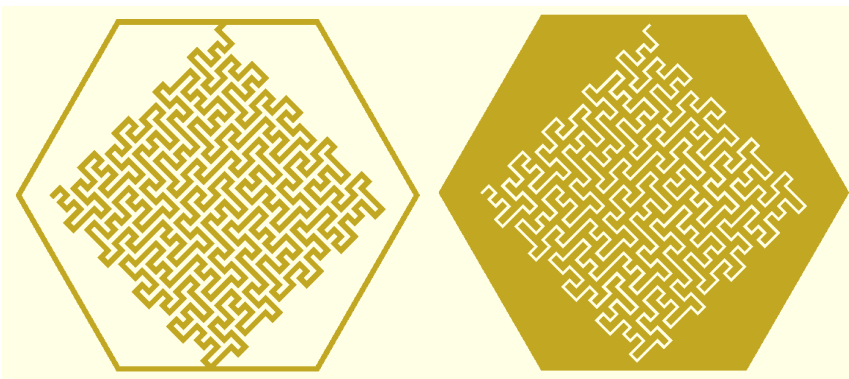
polygon=false;

diferenza=0;

n=3;

polygon=false;

diferenza=1;



26- Gosper variation

axiom="X";

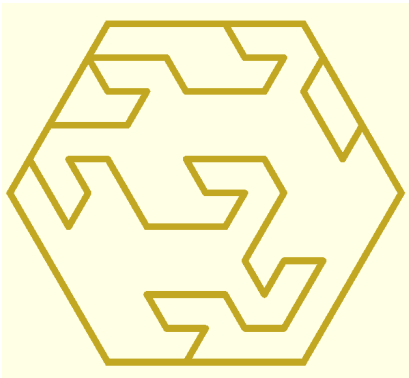
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F=F"];

angle=60;

n=2;

polygon=false;

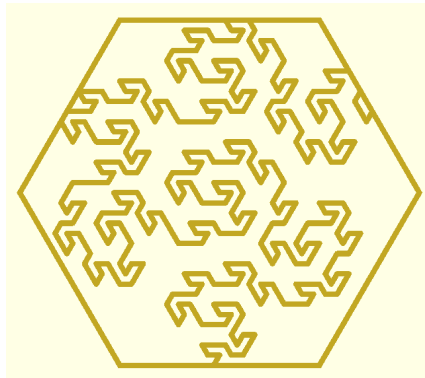
diferenza=0;



n=3;

polygon=false;

diferenza=0;



26a- Gosper variation tree

axiom="X--X--X";

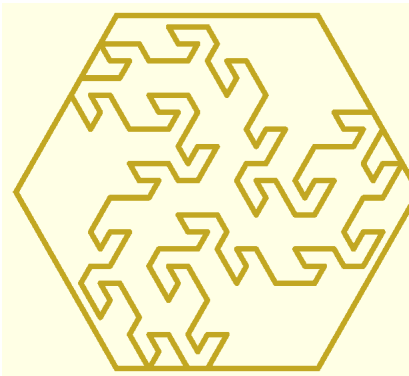
rules=["X=FX+YF++YF-FX--FXFX-YF+", "Y=-FX+YFYF++YF+FX--FX-FY", "F=F"];

angle=60;

n=2;

polygon=false;

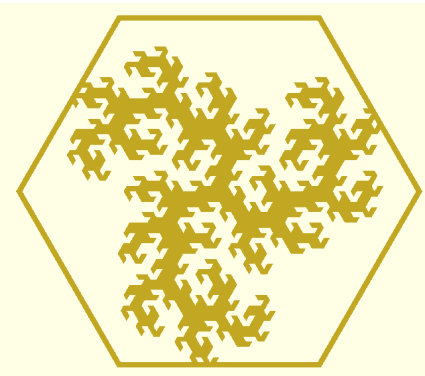
diferenza=0;



n=3;

polygon=true;

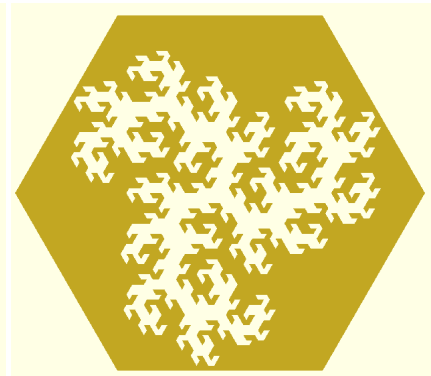
diferenza=0;



n=3;

polygon=true;

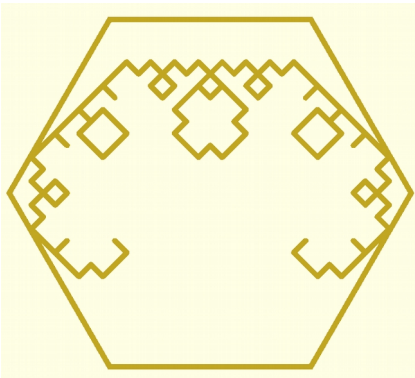
diferenza=1;



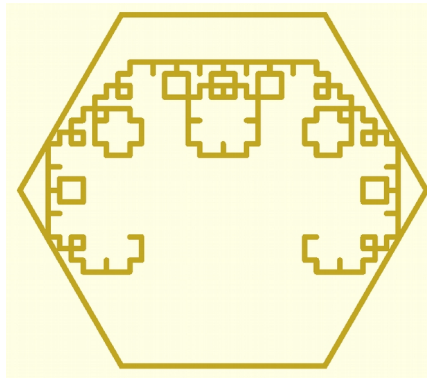
27- Levy_c curve

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

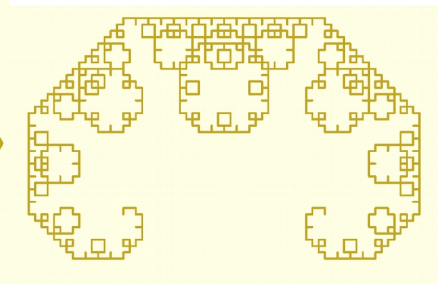
```
n=7;  
polygon=false;  
diferenza=0;
```



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



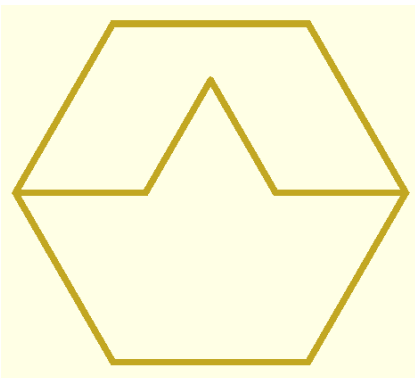
```
n=10;  
hexagon=false;
```



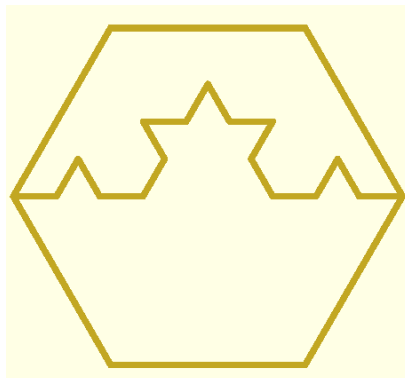
28- Koch curve

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

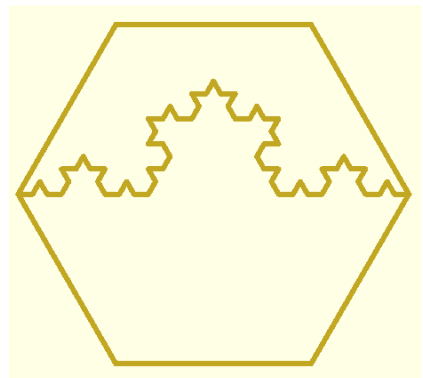
```
n=1;  
polygon=false;  
diferenza=0;
```



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



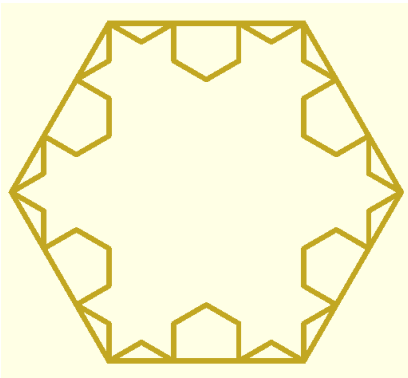
```
n=3;  
polygon=false;  
diferenza=0;
```



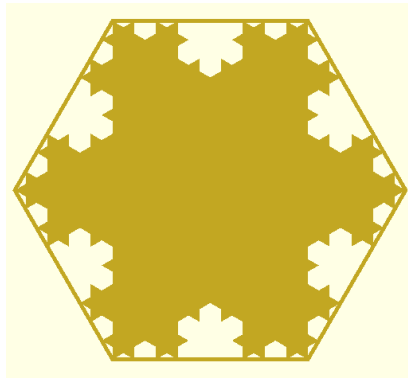
29- Koch snowflake

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

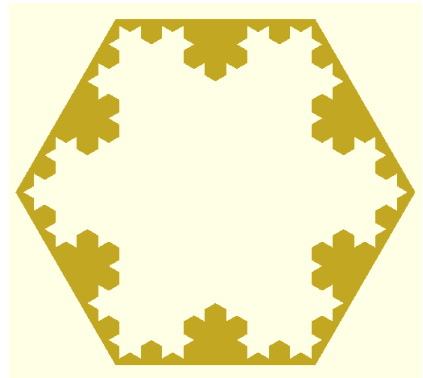
```
n=2;  
polygon=false;  
diferenza=0;
```



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



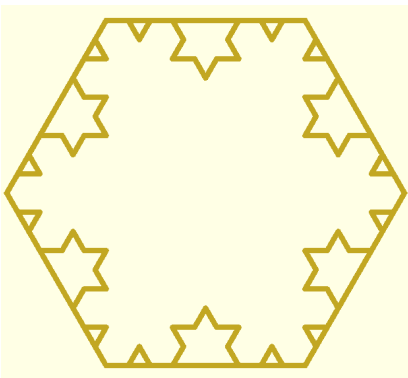
```
n=3;  
polygon=true;  
diferenza=1;
```



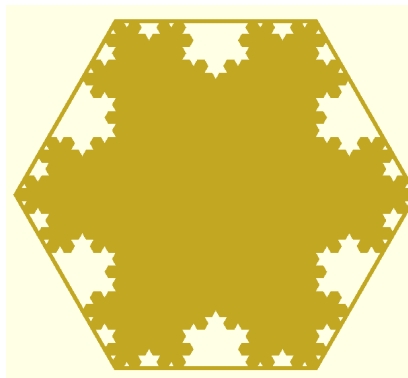
30- Koch snowflake inverted

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

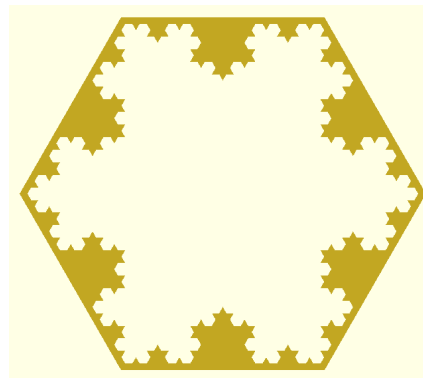
```
n=2;  
polygon=false;  
diferenza=0;
```



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



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



31- Koch snowflake variant

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

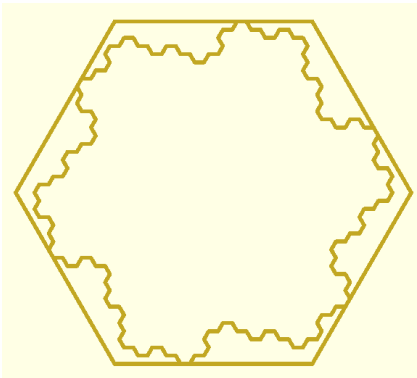
rules=["F=-F++F--F+"];

angle=30;

n=3;

polygon=false;

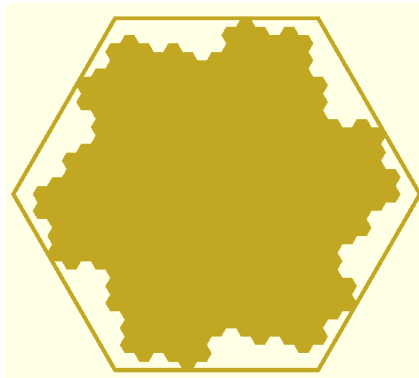
diferenza=0;



n=3;

polygon=true;

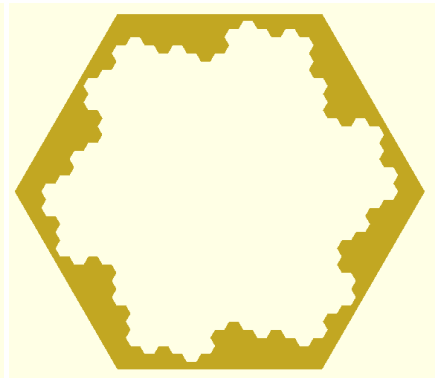
diferenza=0;



n=3;

polygon=true;

diferenza=1;



32- Reflected Koch

axiom="X";

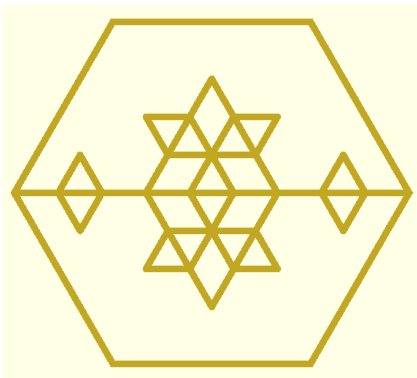
rules=["X=XF+YF--XF-XF--XF--YFXF", "Y=XFYF++YF++YF+YF++XF-YF", "F="];

angle=60;

n=2;

polygon=false;

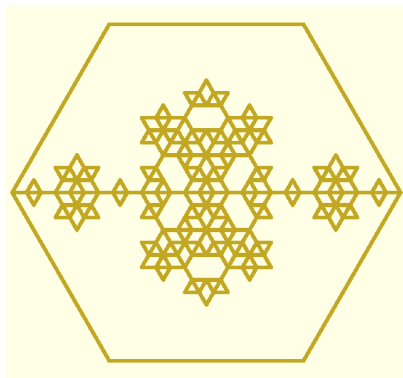
diferenza=0;



n=3;

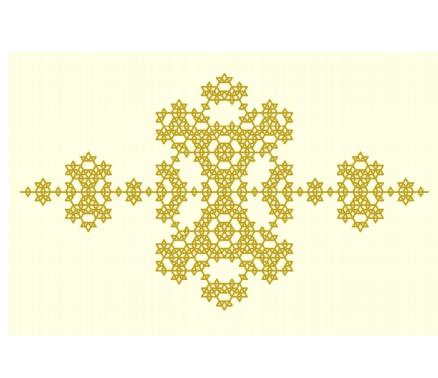
polygon=false;

diferenza=0;



n=4;

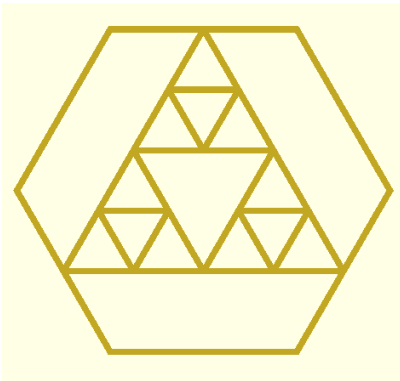
hexagon=false;



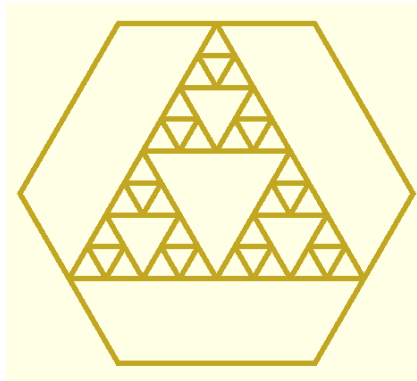
33- Sierpinski triangle

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

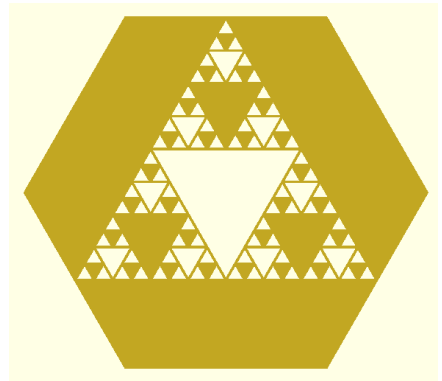
```
n=3;
polygon=false;
diferenza=0;
```



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



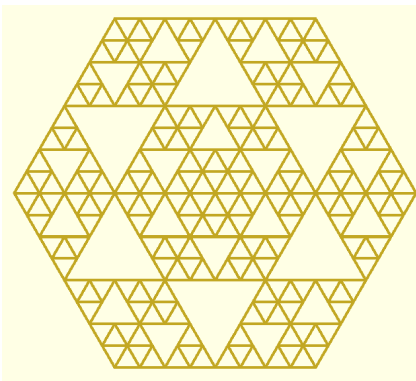
```
n=5;
polygon=false;
diferenza=2;
```



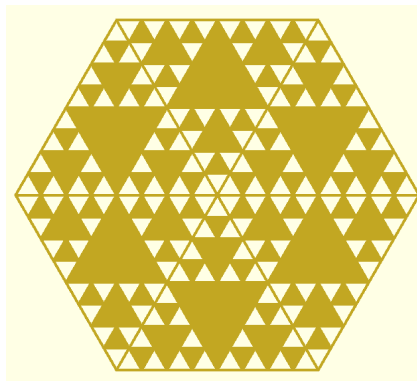
34- Sierpinski hexagon

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

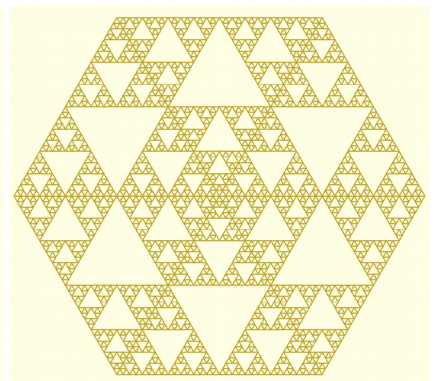
```
n=4;
polygon=false;
diferenza=0;
```



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



```
n=6;
hexagon=false;
```



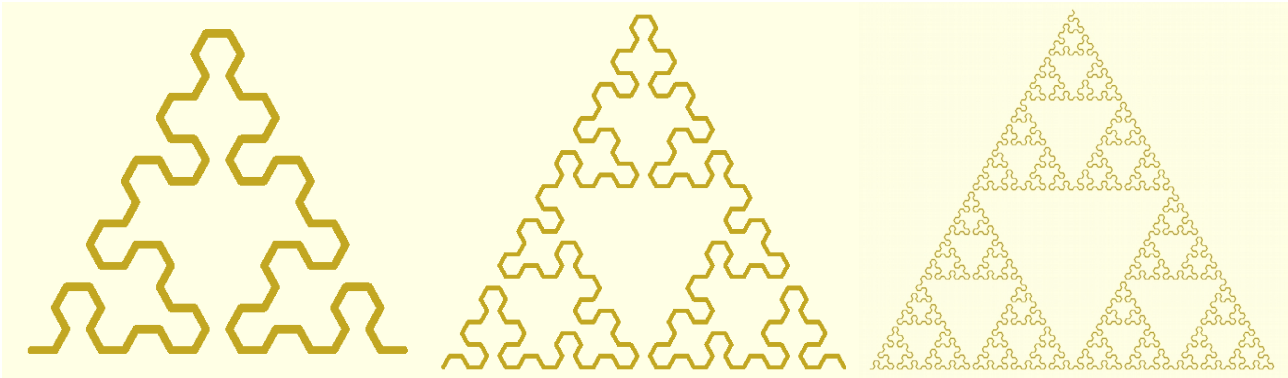
35- Sierpinski arrowhead (not hexagon)

```
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;
```



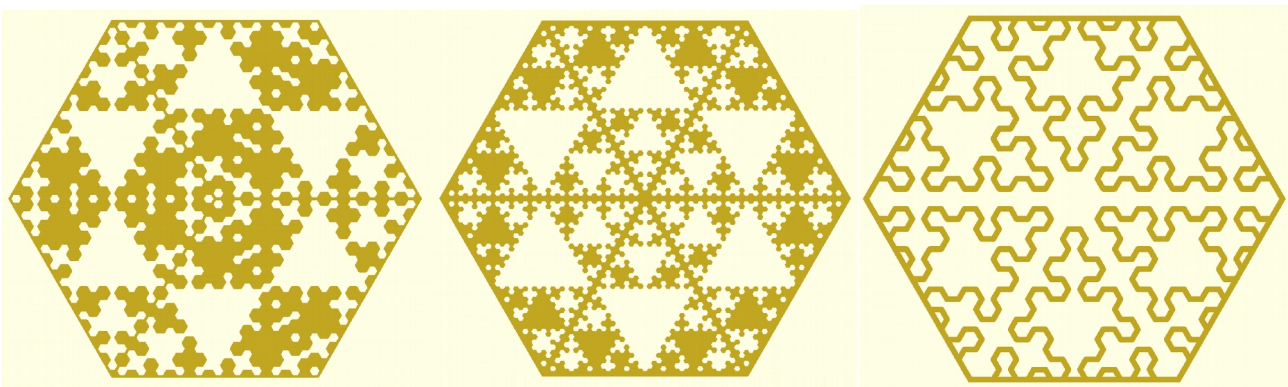
36- Sierpinski arrowhead hexagon

```
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;
```



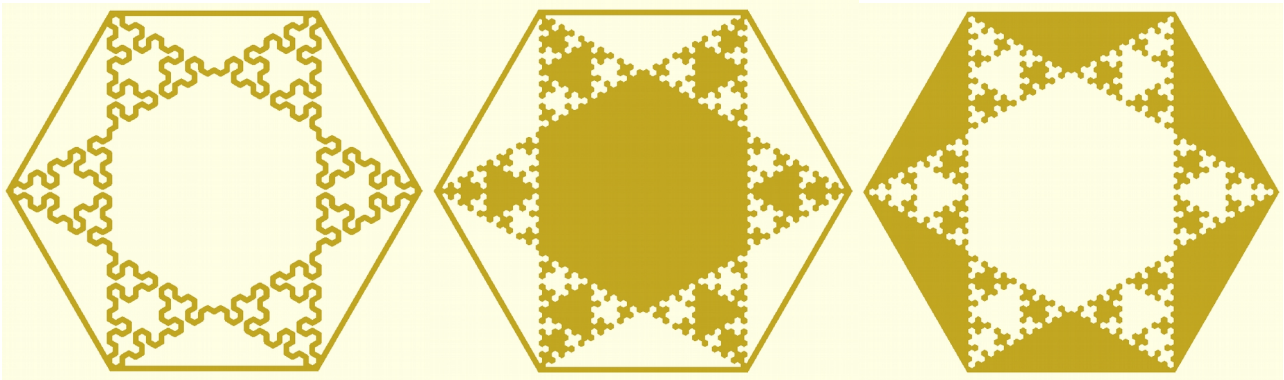
37- Sierpinski arrowhead star

```
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;
diferenza=0;
```

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

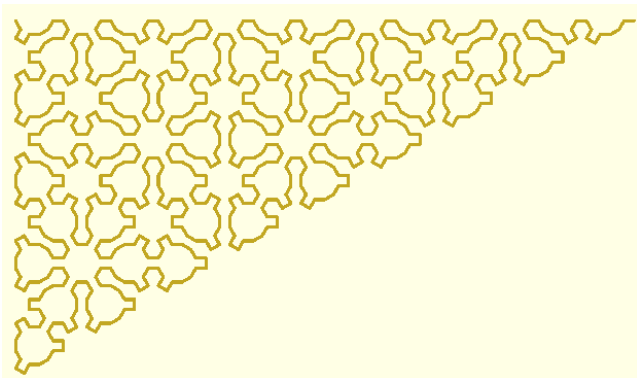
```
n=5;
polygon=true;
diferenza=1;
```



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";

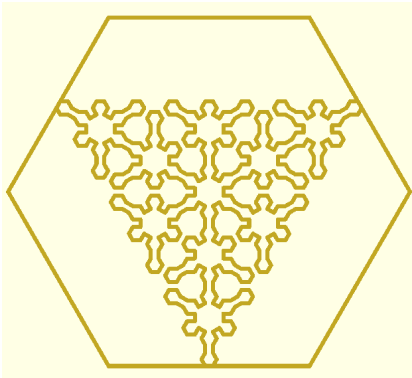
rules=["X=---W++F++YFW-", "Y=+ZFX--F--Z+++", "W=+++X--F--ZFX+", "Z=-YFW++F++Y---"];

angle=30;

n=5;

polygon=false;

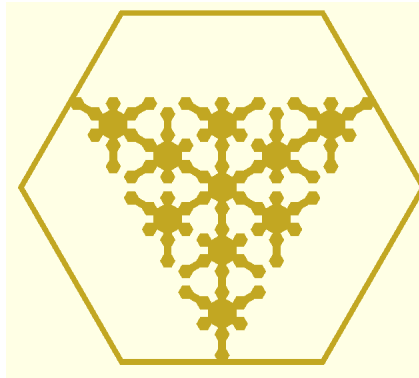
diferenza=0;



n=5;

polygon=true;

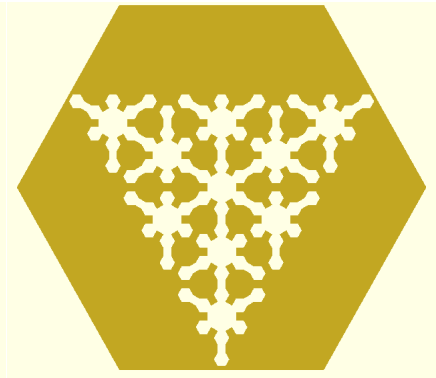
diferenza=0;



n=5;

polygon=true;

diferenza=1;



40- Square Sierpinski

axiom="F+XF+F+XF";

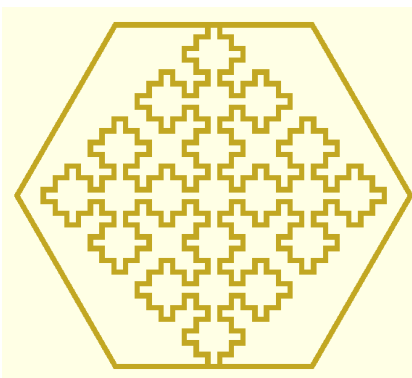
rules=["X=XF-F+F-XF+F+XF-F+F-X"];

angle=90;

n=3;

polygon=false;

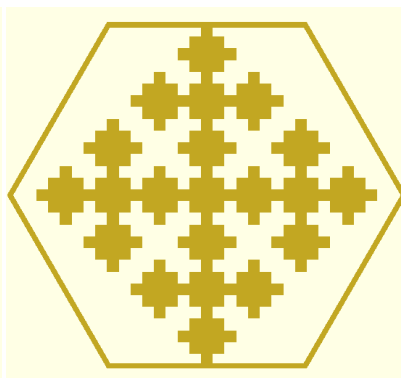
diferenza=0;



n=3;

polygon=true;

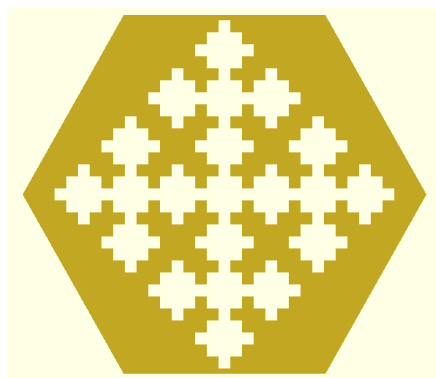
diferenza=0;



n=3;

polygon=true;

diferenza=1;



41- Square Sierpinski 45

axiom="X--F--X--F";

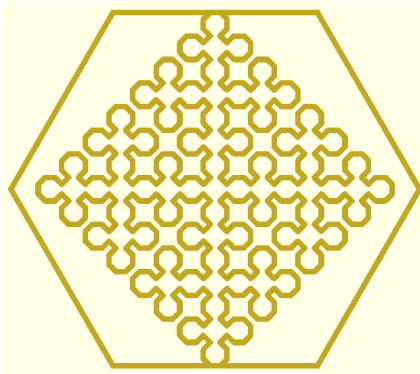
rules=["X=+Y-F-Y+", "Y=-X+F+X-"];

angle=45;

n=8;

polygon=false;

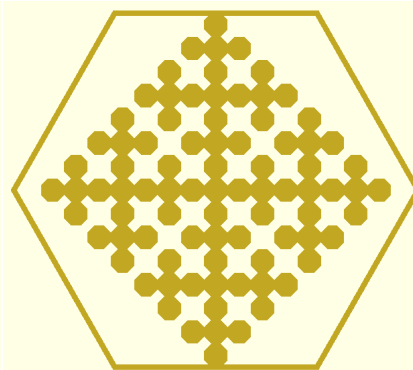
diferenza=0;



n=8;

polygon=true;

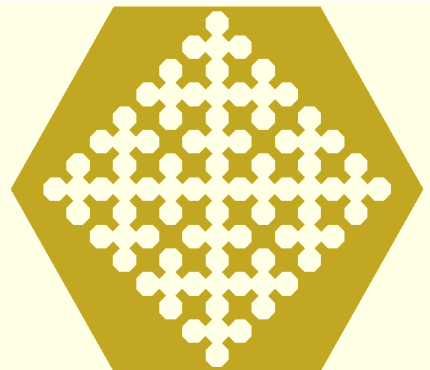
diferenza=0;



n=8;

polygon=true;

diferenza=1;



42- Peano curve - root9

axiom="F";

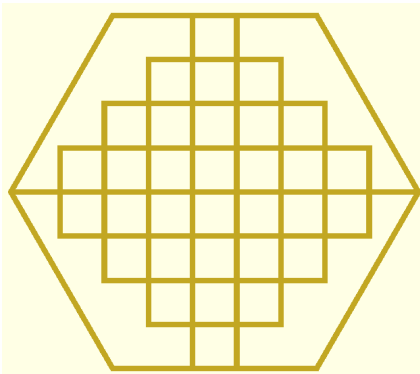
rules=["F=F+F-F-F-F+F+F-F-F"];

angle=90;

n=2;

polygon=false;

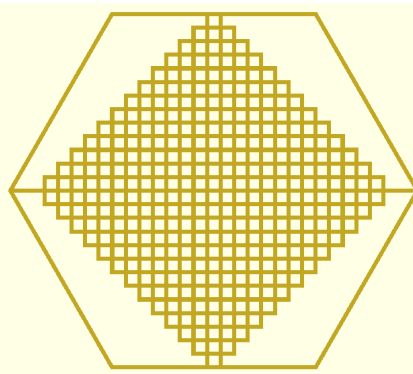
diferenza=0;



n=3;

polygon=false;

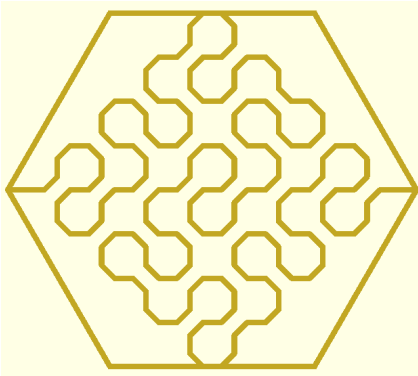
diferenza=0;



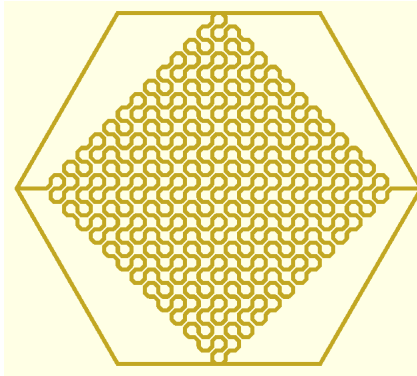
43- Peano round corners

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

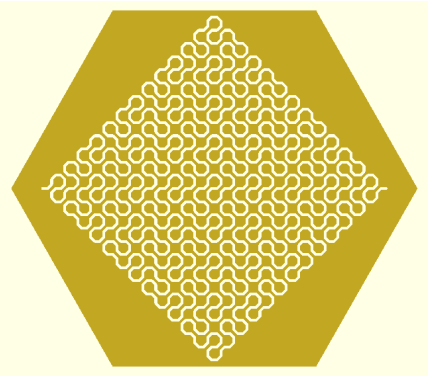
```
n=2;  
polygon=false;  
diferenza=0;
```



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



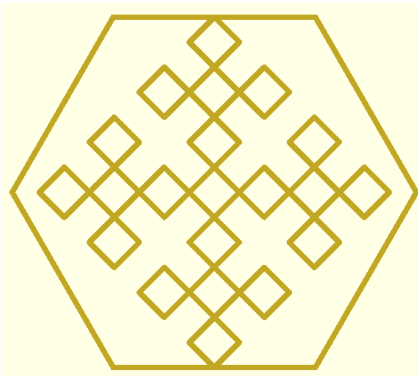
```
n=3;  
polygon=false;  
diferenza=1;
```



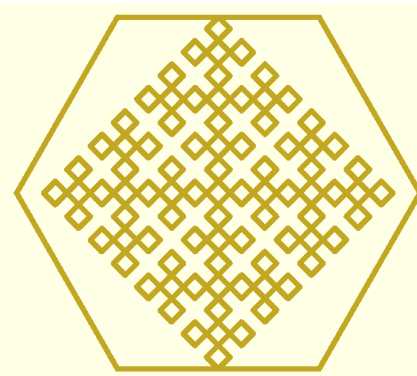
44- krishna

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

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



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

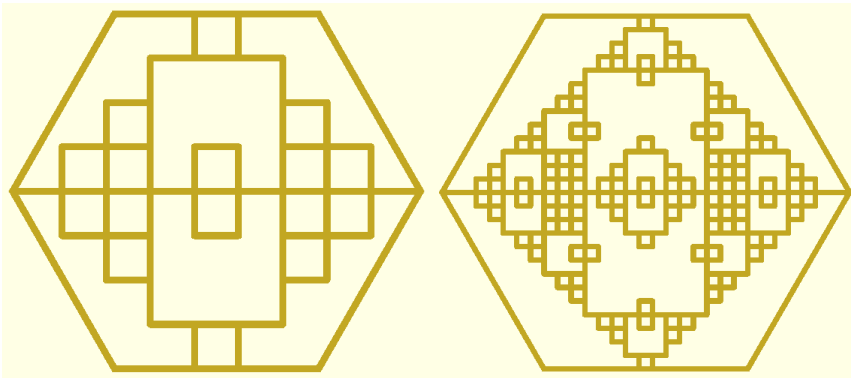


45- carpet3

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

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

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



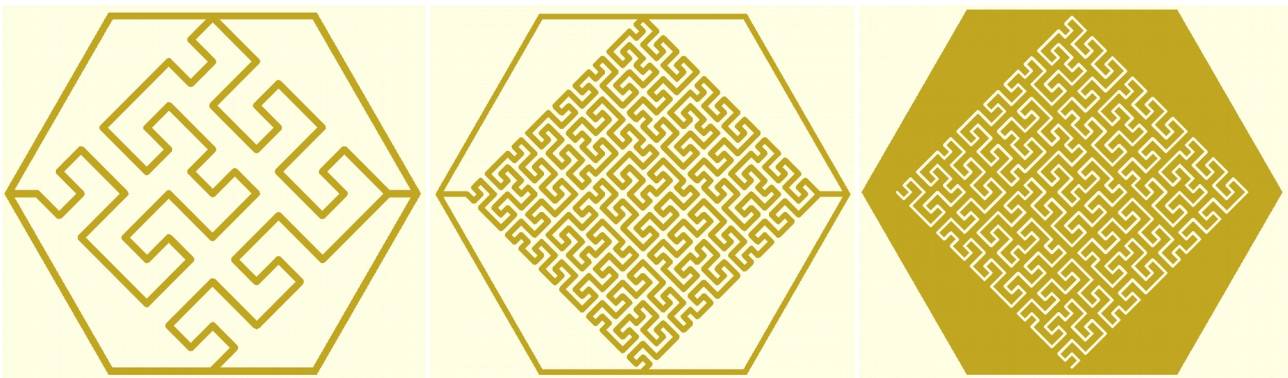
46- carpet5

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

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

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

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



47- Pentaplexity

axiom="F++F++F++F++F";

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

angle=36;

n=2;

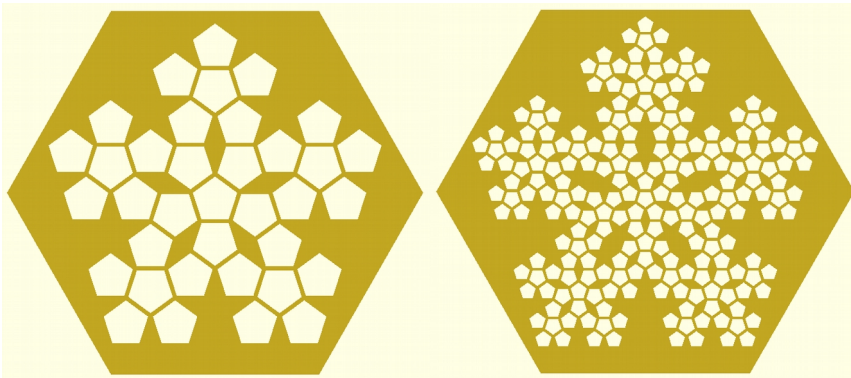
polygon=false;

diferenza=0;

n=3;

polygon=false;

diferenza=0;



48- pentadendrite (not hexagon)

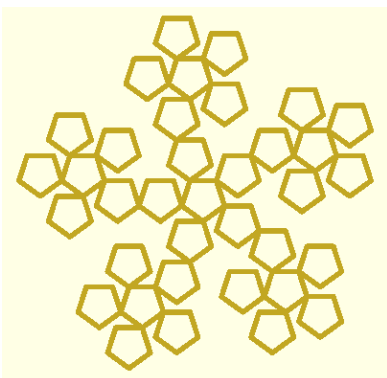
axiom="F-F-F-F-F";

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

angle=72;

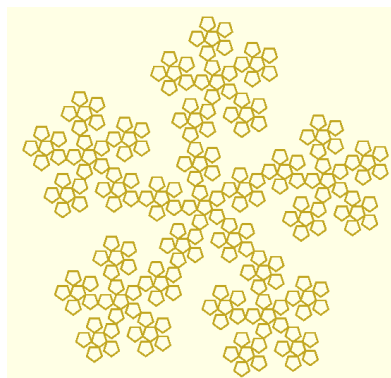
n=2;

hexagon=false;



n=3;

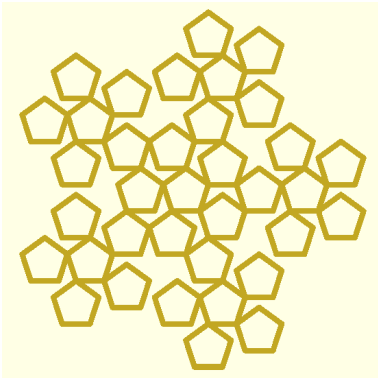
hexagon=false;



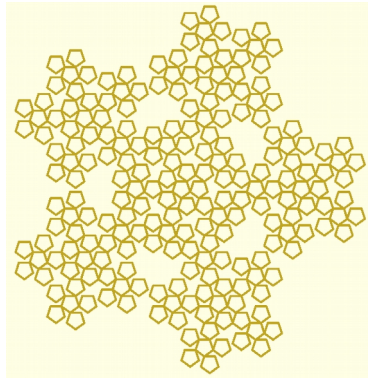
49- McWorter's Pentigree (not hexagon)

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

```
n=2;
hexagon=false;
```



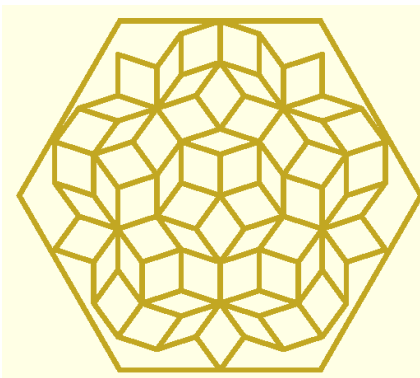
```
n=3;
hexagon=false;
```



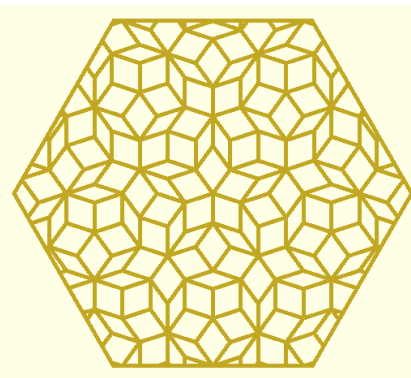
50- Penrose

```
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;
```



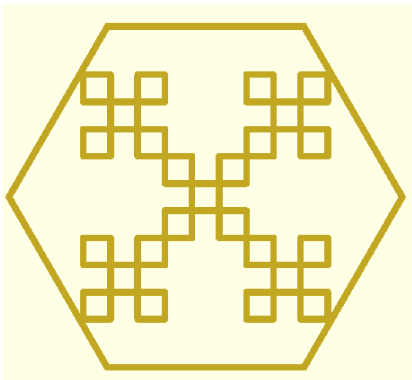
```
n=4;
polygon=false;
diferenza=0;
```



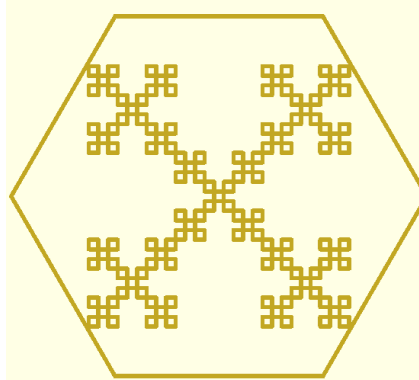
51- A bush

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

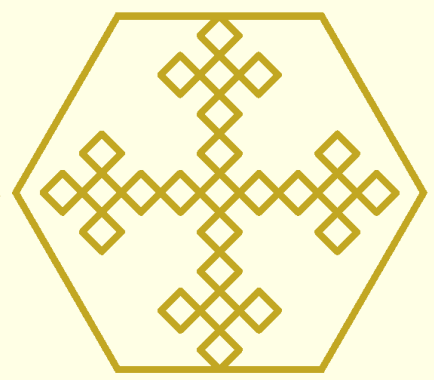
```
N=2; rot=0;
polygon=false;
diferenza=0;
```



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



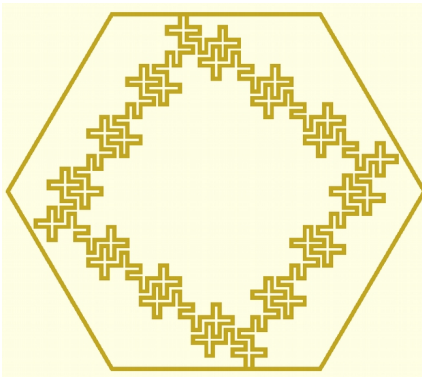
```
n=2; rot=45;
polygon=false;
diferenza=0;
```



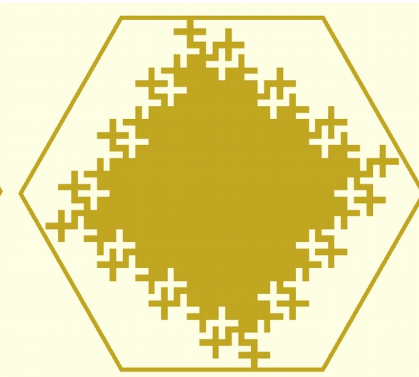
52- X-border - Joined Cross Curves

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

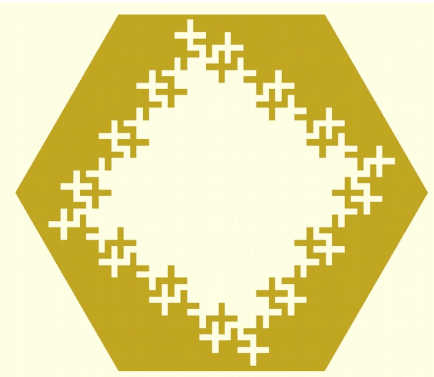
```
n=3;
polygon=false;
diferenza=0;
```



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



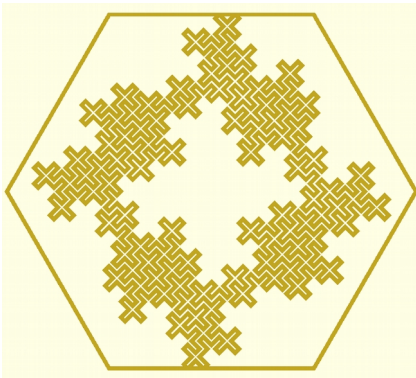
```
n=3;
polygon=true;
diferenza=1;
```



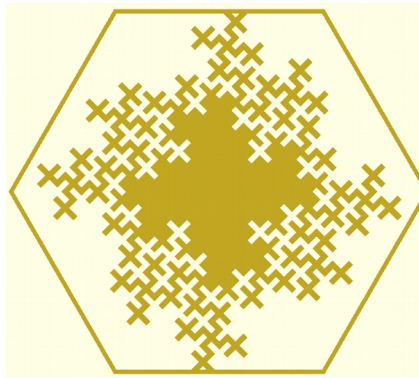
52a- X-border2 - Joined Cross Curves

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

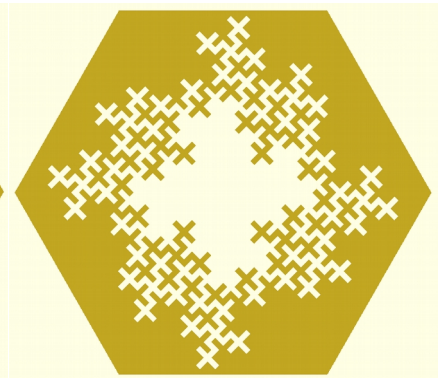
```
n=4;
polygon=false;
diferenza=0;
```



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



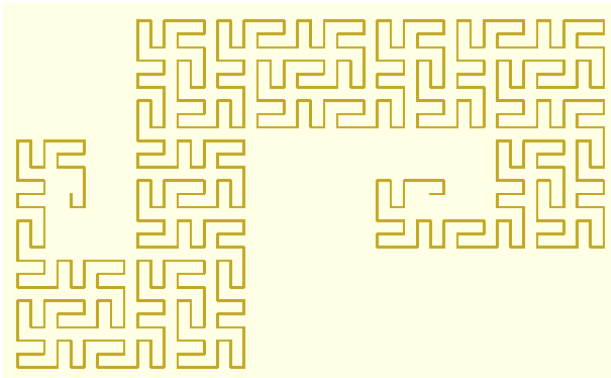
```
n=4;
polygon=true;
diferenza=1;
```



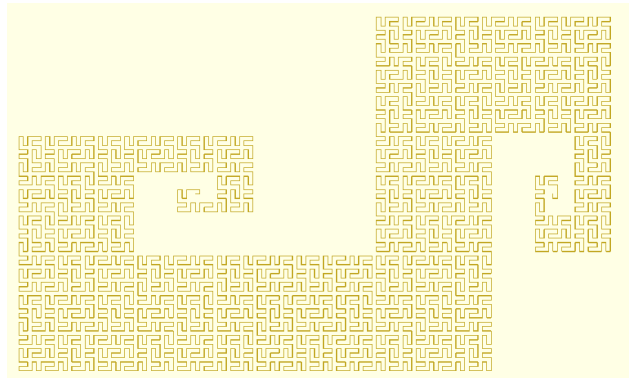
53- Moore (not hexagon)

```
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)

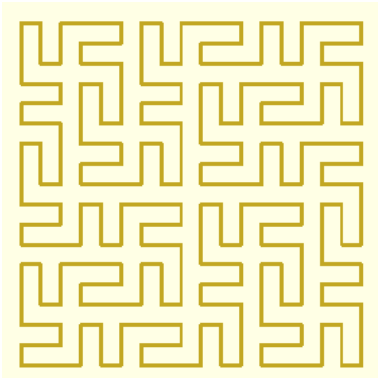
axiom="Y-Y-Y-Y";

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

angle=90;

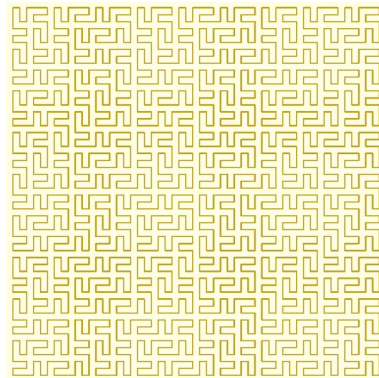
n=2;

hexagon=false;



n=3;

hexagon=false;



55- Pajarita

axiom="X++X++X";

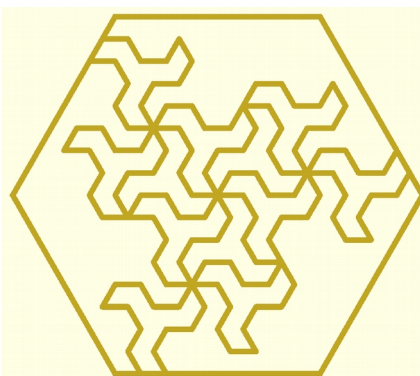
rules=["F=", "X=F-F-F+F+FX++F-F-F+F+FX--F-F-F+F+FX"];

angle=60;

n=2;

polygon=false;

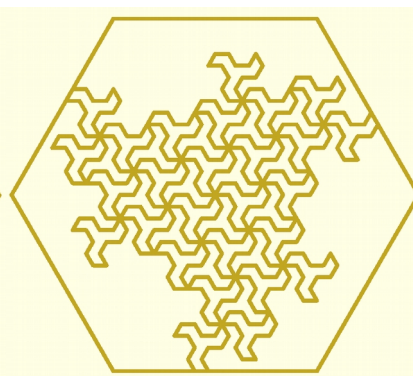
diferenza=0;



n=3;

polygon=true;

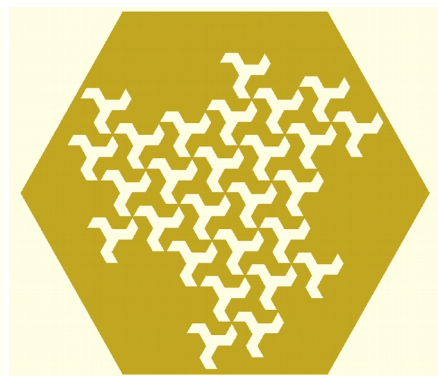
diferenza=0;



n=4;

polygon=true;

diferenza=2;



56- estrela4puntas

axiom="F++++F";

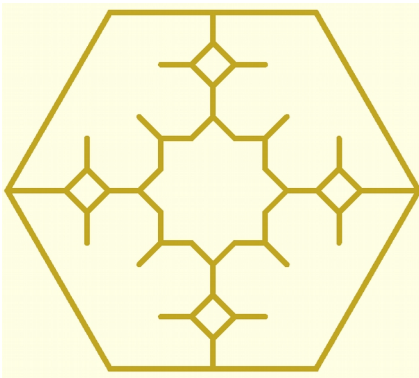
rules=["F=F+F+F++++F+F+F"];

angle=45;

n=2;

polygon=false;

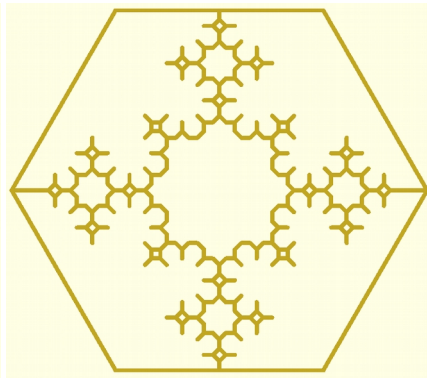
diferenza=0;



n=3;

polygon=true;

diferenza=0;



57- Cross2

axiom="F+F+F+F";

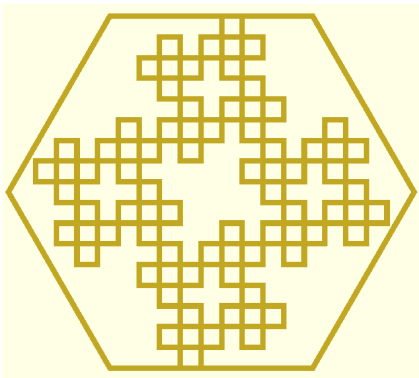
rules=["F=F+F-F+F+F"];

angle=90;

n=3;

polygon=false;

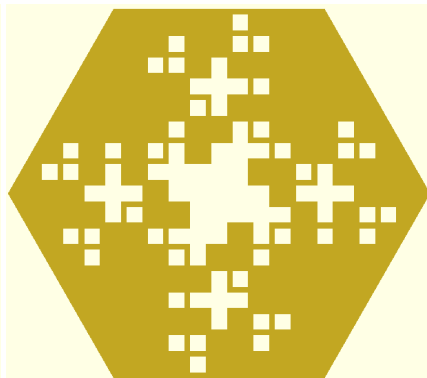
diferenza=0;



n=3;

polygon=true;

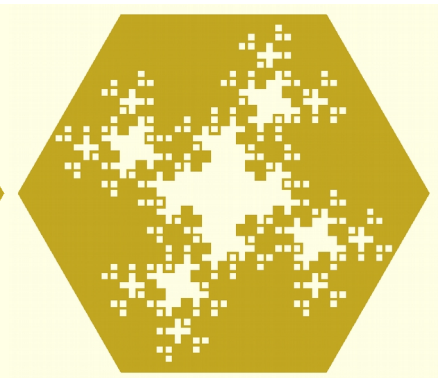
diferenza=2;



n=4;

polygon=true;

diferenza=2;

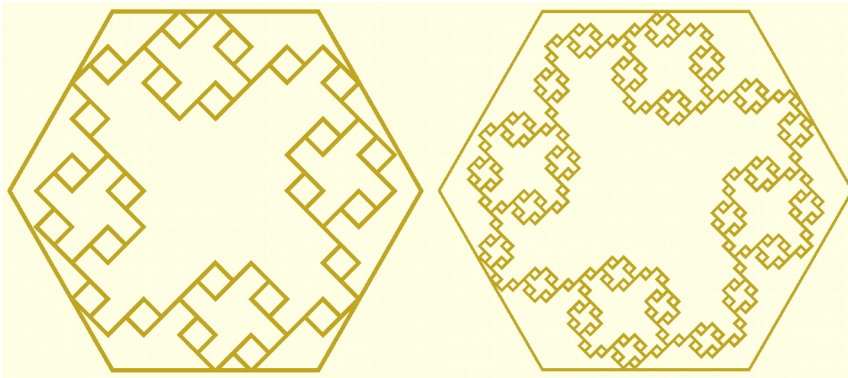


58- Cross3

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

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

```
n=3;
polygon=true;
diferenza=2;
```



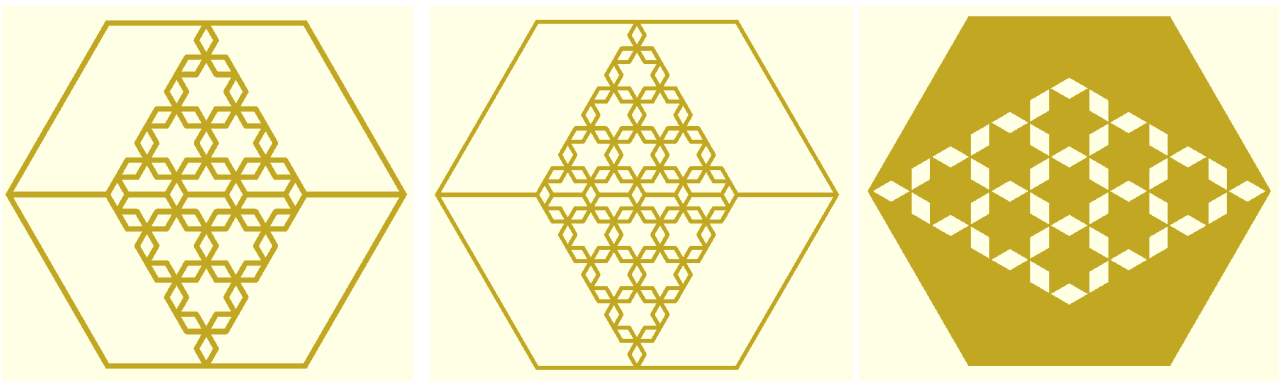
59- Mango Leaf

```
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;
```

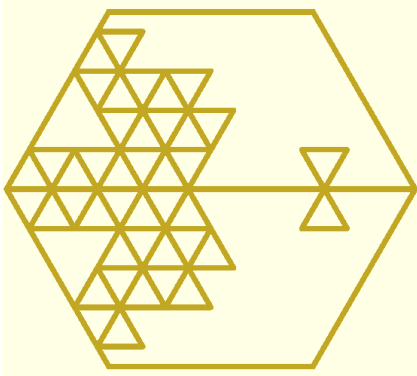
```
n=4; rot=90;
polygon=true;
diferenza=2;
```



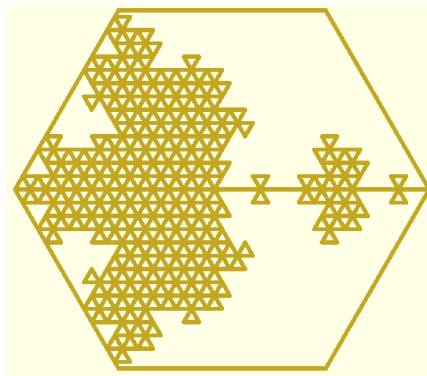
60- Maple-root9

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

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



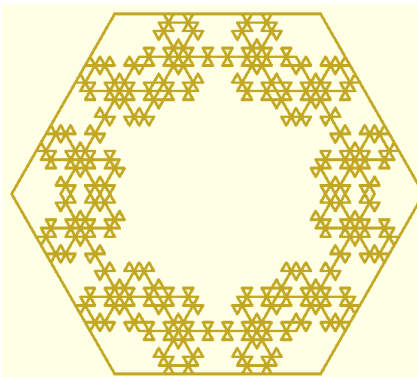
```
n=3;  
polygon=true;  
diferenza=0;
```



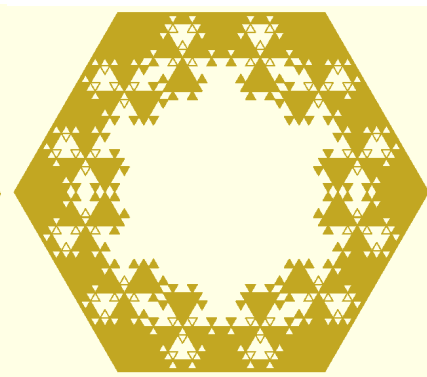
61- Maple2-root9

```
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;  
polygon=false;  
diferenza=0;
```



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

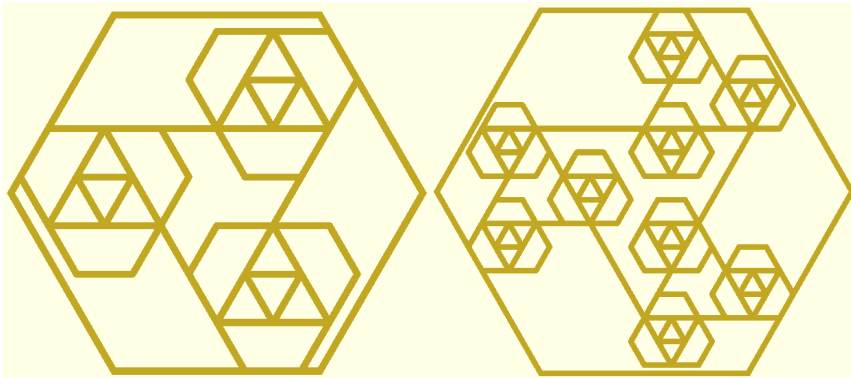


62- triangulos4-rosas

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

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

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

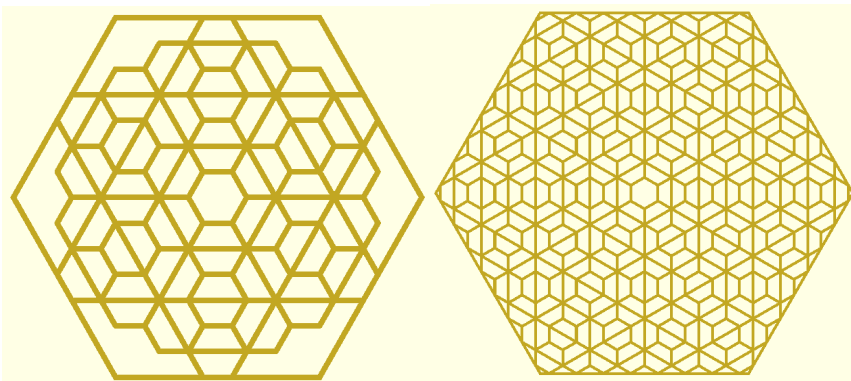


63- hexagonos1

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

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

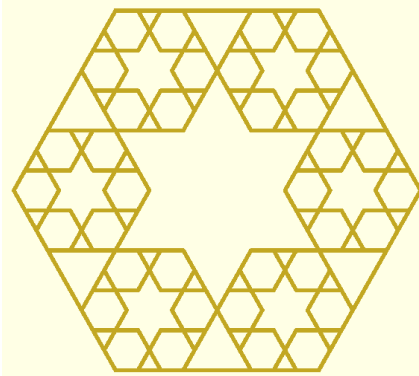
```
n=4; rot=30;  
polygon=false;  
diferenza=0;
```



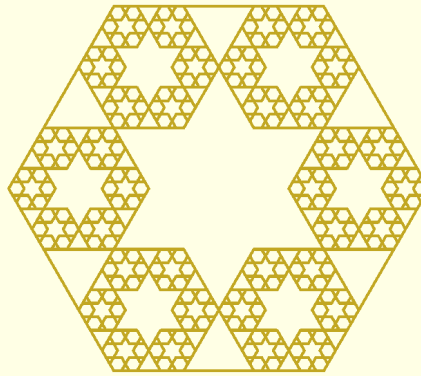
64- hexagonos2-estrelas

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

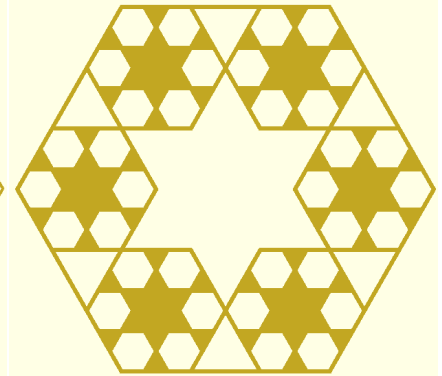
```
n=3;  
polygon=false;  
diferenza=0;
```



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



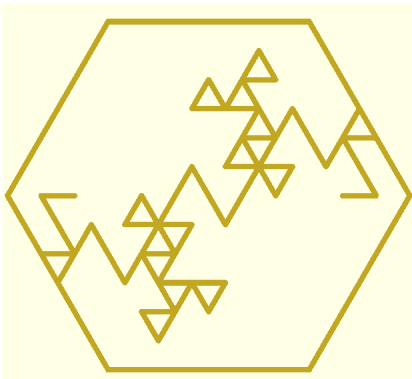
```
n=3;  
polygon=false;  
diferenza=2;
```



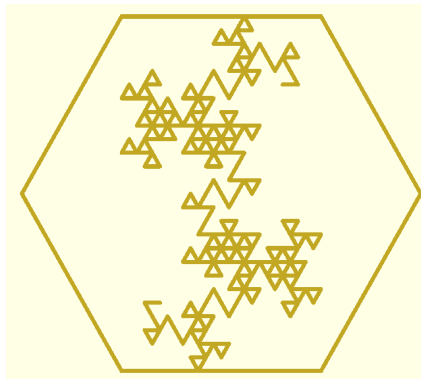
65- triángulos1-root4

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

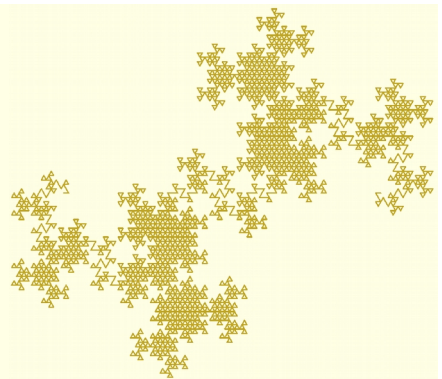
```
n=3;  
polygon=false;  
diferenza=0;
```



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



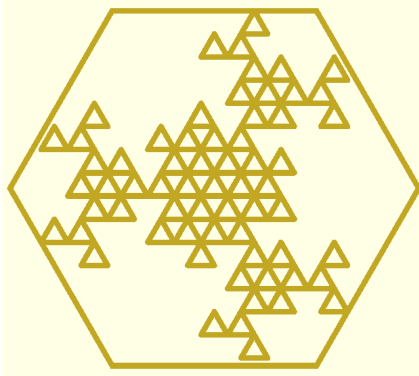
```
n=6;  
hexagon=false;
```



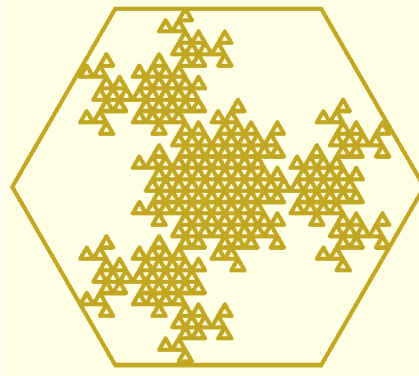
66- triángulos1a-root4

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

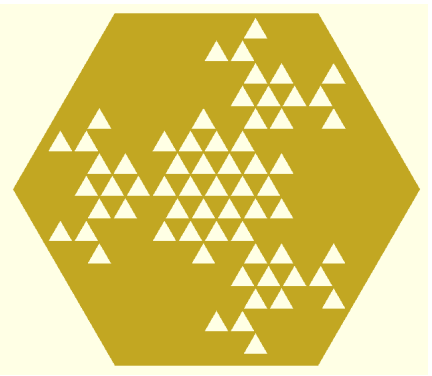
```
n=3;  
polygon=false;  
diferenza=0;
```



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



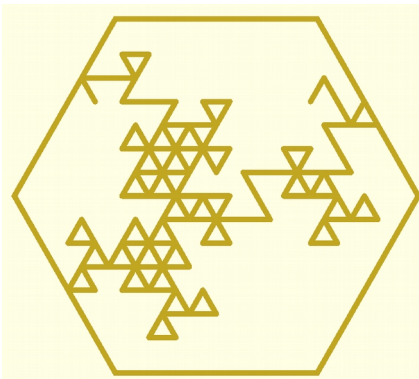
```
n=3;  
polygon=false;  
diferenza=2;
```



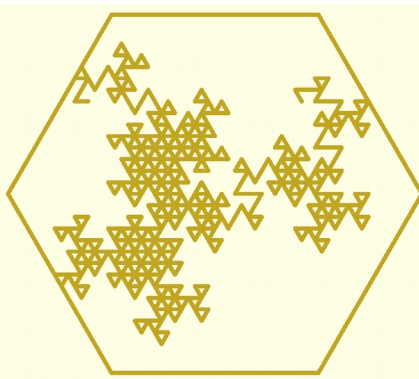
67- triángulos2-root4

```
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;

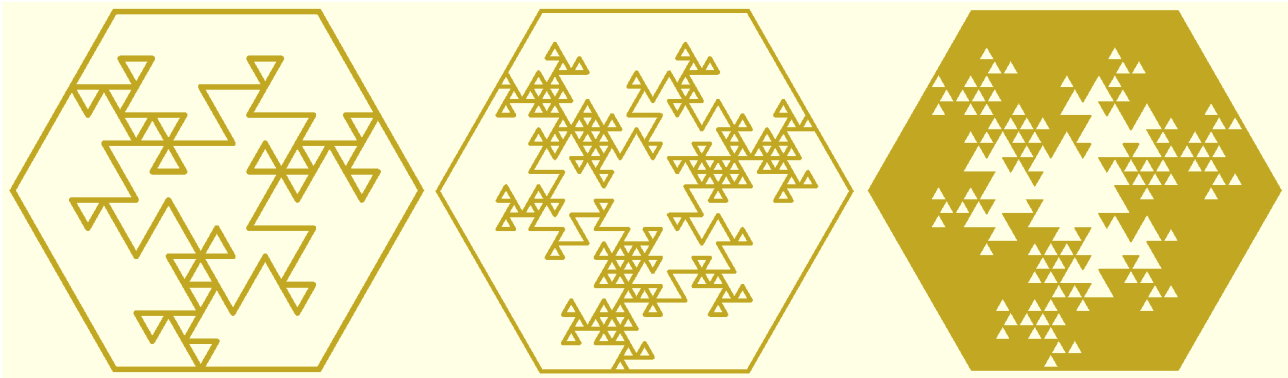
polygon=false;

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;

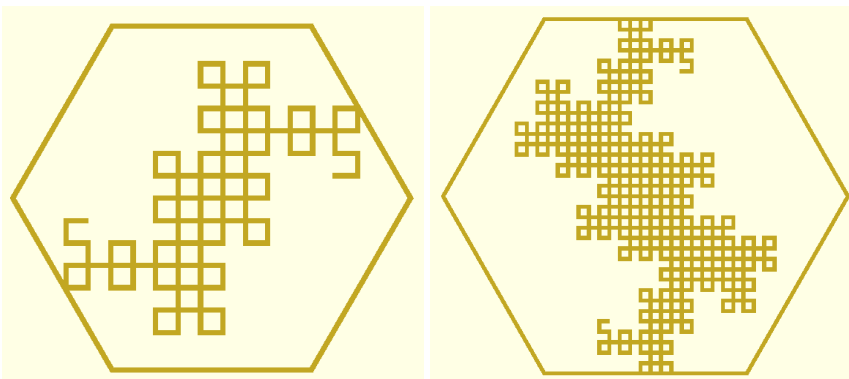
polygon=false;

diferenza=0;

n=4;

polygon=false;

diferenza=0;

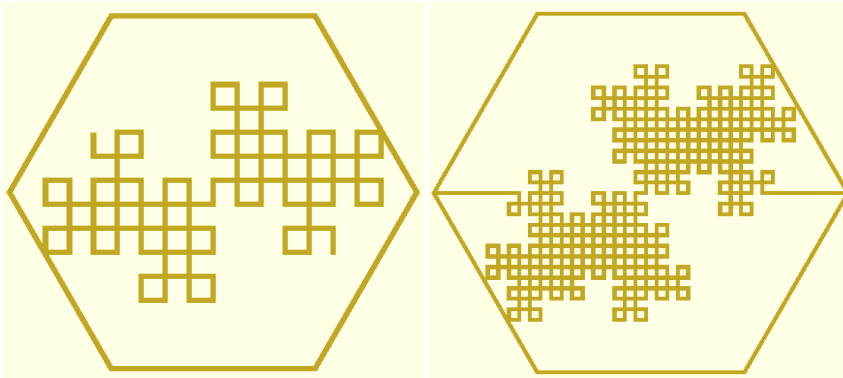


70- Pinched 5_dragon -root5

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

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

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

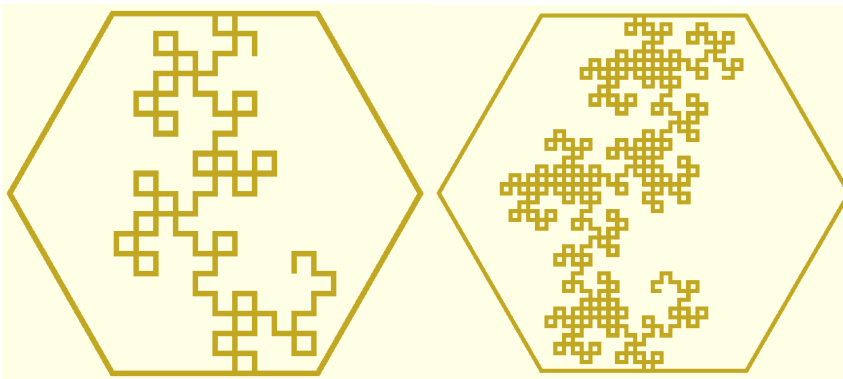


71- 5_Crazy dragon

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

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

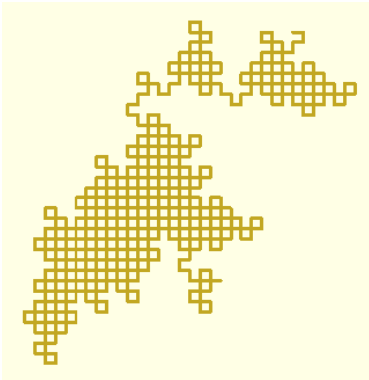
```
n=4;  
polygon=false;  
diferenza=0;
```



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;  
hexagon=false;
```



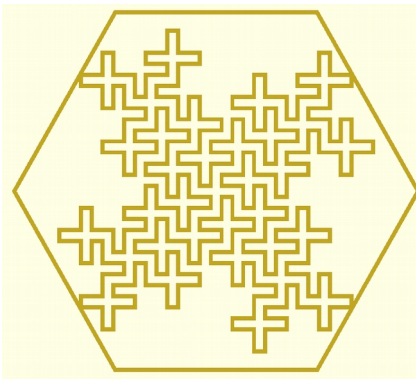
```
n=5;  
hexagon=false;
```



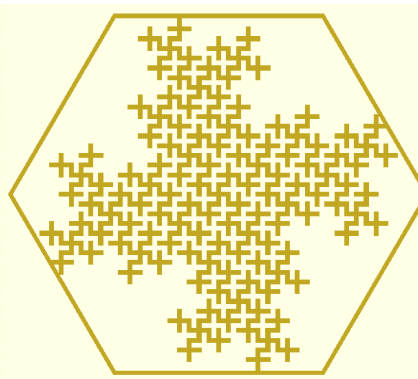
73- 5_Jaggy-Cross2

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

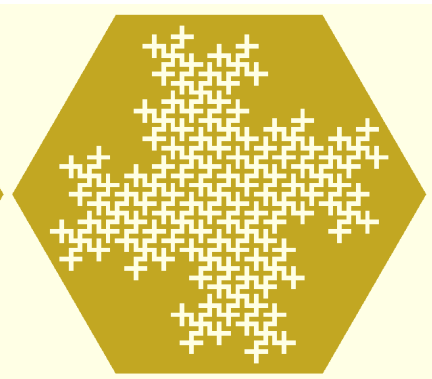
```
n=3;  
polygon=false;  
diferenza=0;
```



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



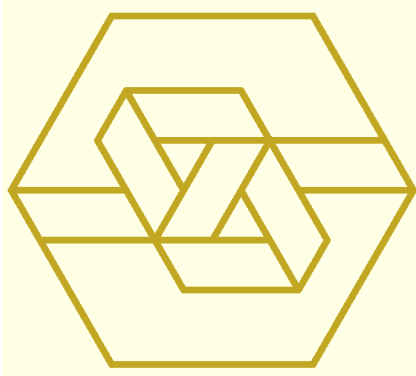
```
n=4;  
polygon=true;  
diferenza=1;
```



74- Lazo

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

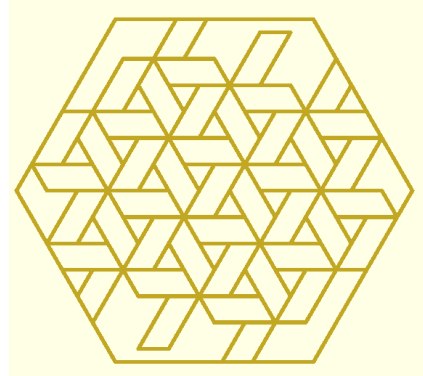
```
n=4;  
polygon=false;  
diferenza=0;
```



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



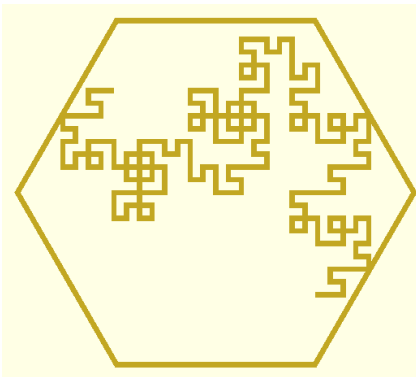
```
n=8;  
polygon=false;  
diferenza=2;
```



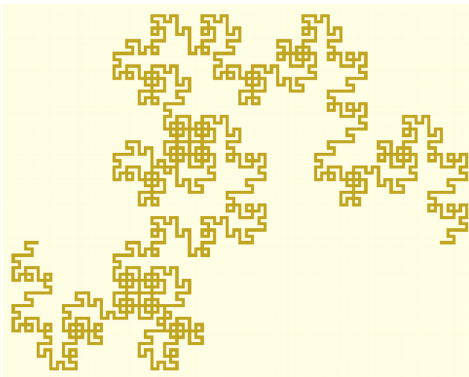
75- BrainDragon variant -root8

```
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;

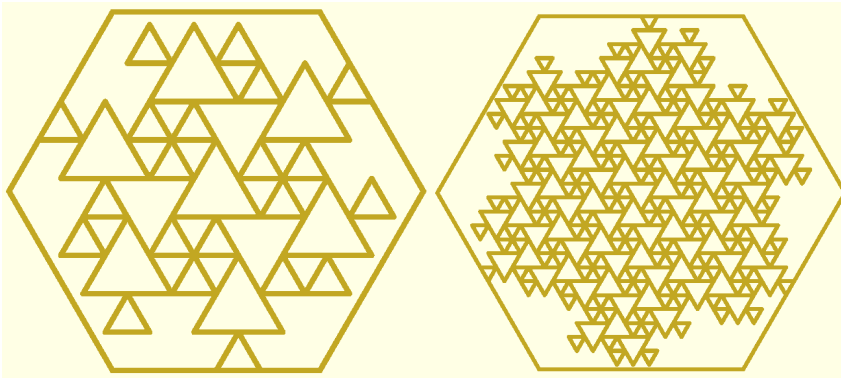
polygon=false;

diferenza=0;

n=3;

polygon=false;

diferenza=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;

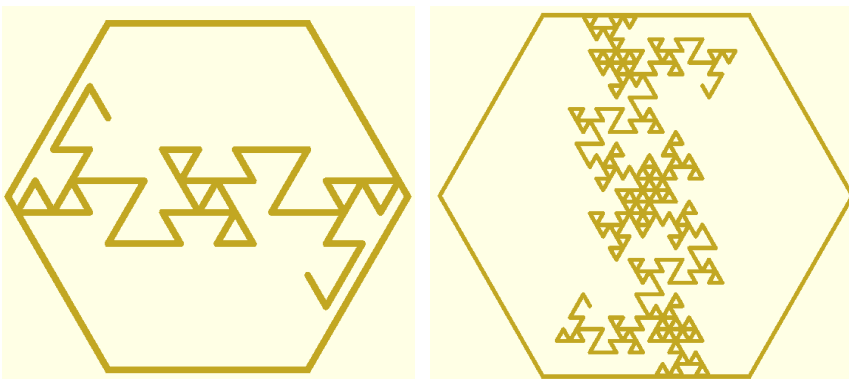
polygon=false;

diferenza=0;

n=3;

polygon=false;

diferenza=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;

diferenza=0;

n=3;

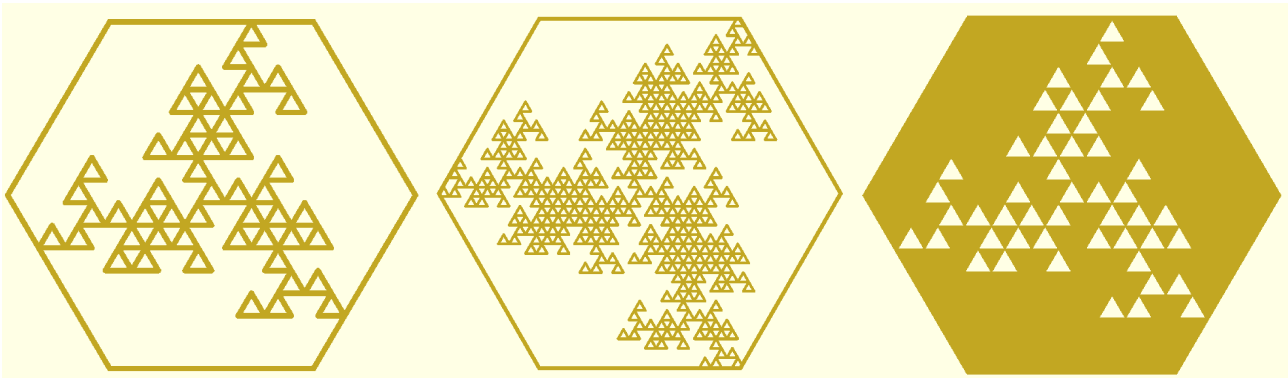
polygon=false;

diferenza=0;

n=2;

polygon=false;

diferenza=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;

diferenza=1;

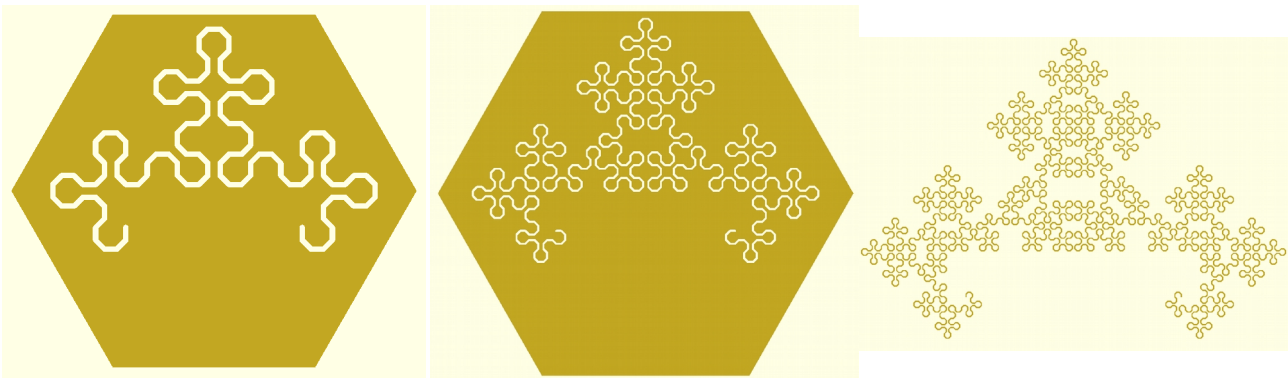
n=4;

polygon=false;

diferenza=1;

n=5;

hexagono=false;



79- Dragon-root9 (not hexagon)

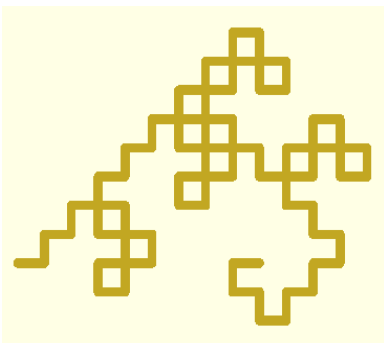
axiom="X";

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

angle=90;

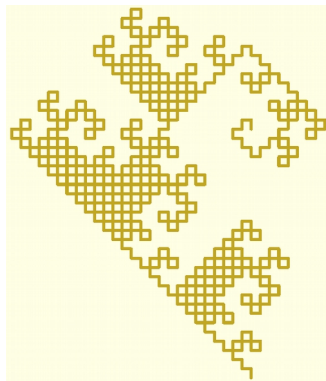
n=2;

hexagon=false;



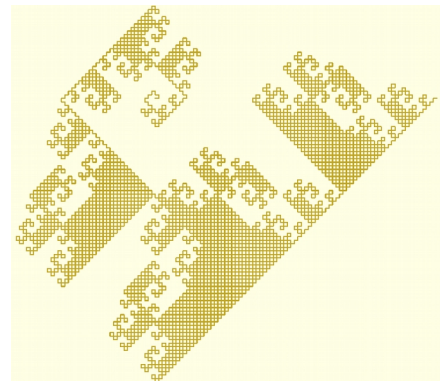
n=3;

hexagono=false;



n=4;

hexagono=false;



80- Triángulos-root9

axiom="F---F";

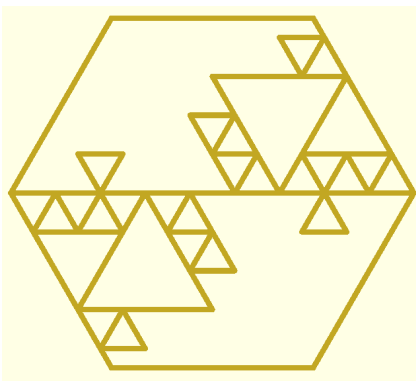
rules=["F=F--F++F++F--FF"];

angle=60;

n=2;

polygon=false;

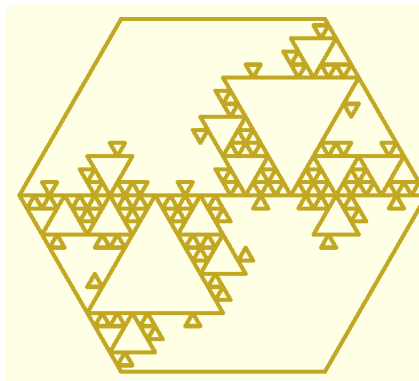
diferenza=0;



n=3;

polygon=false;

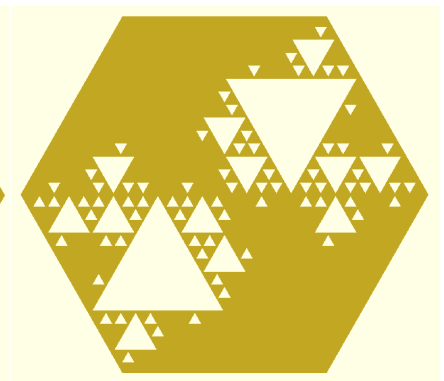
diferenza=0;



n=3;

polygon=false;

diferenza=2;



81- Triángulos2-root9

axiom="F++F++F";

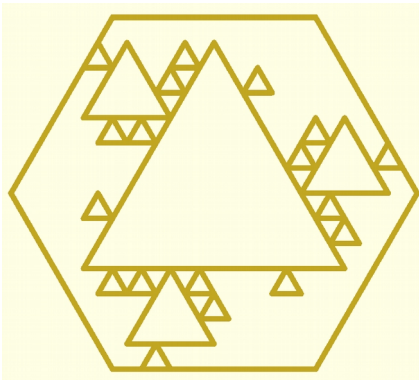
rules=["F=F--F++F++F--FF"];

angle=60;

n=2;

polygon=false;

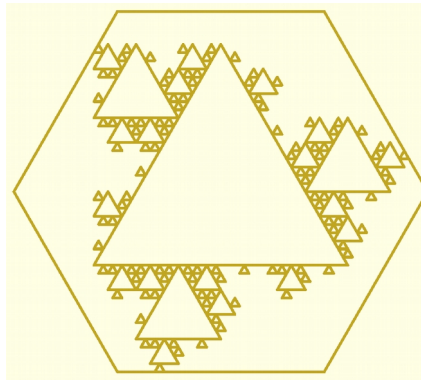
diferenza=0;



n=3;

polygon=false;

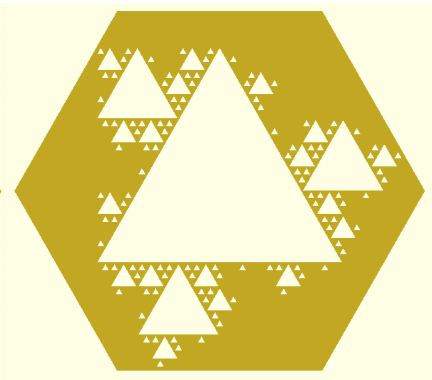
diferenza=0;



n=3;

polygon=false;

diferenza=2;



82- Triángulos3-root9

axiom="X";

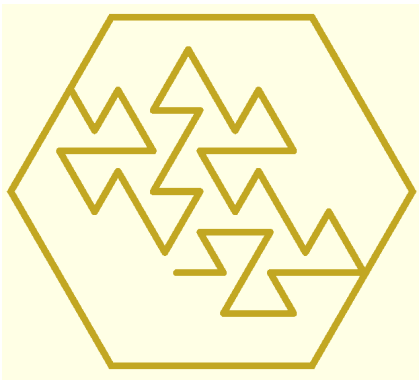
rules=["X=-YFXF++XFYFXF++XFYF--YFXF-", "Y=+YFXF++XFYF--YFXFYF--YFXF+", "F="];

angle=60;

n=2;

polygon=false;

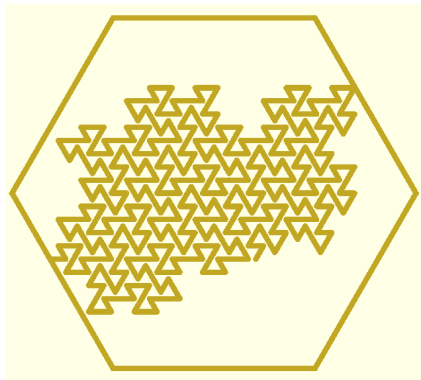
diferenza=0;



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;

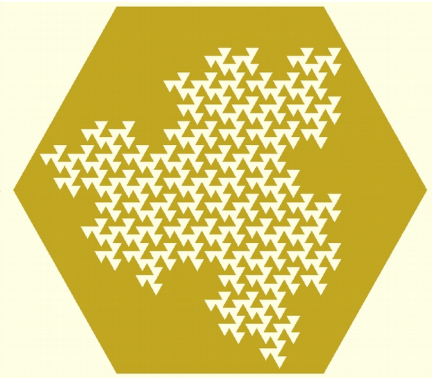
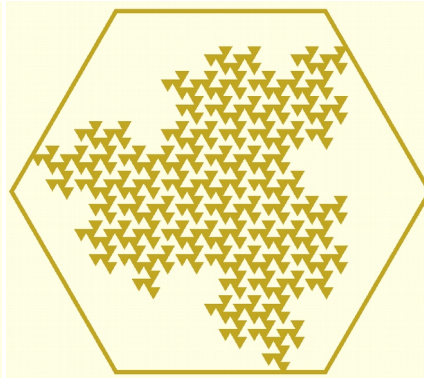
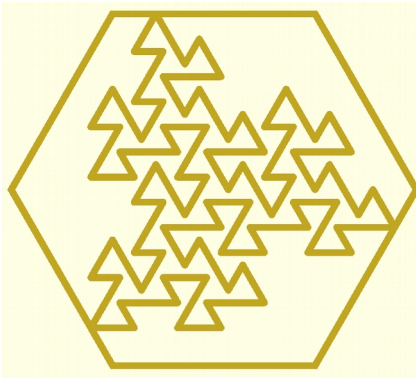
polygon=true;

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="];

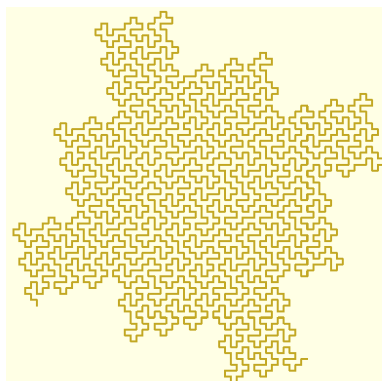
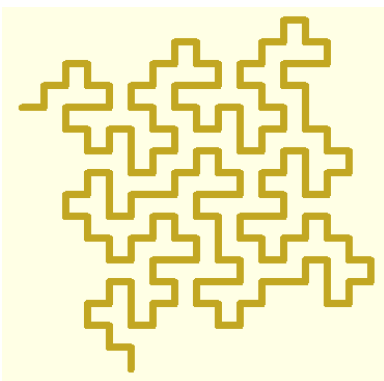
angle=90;

n=2;

hexagono=false;

n=3;

hexagono=false;



85- Gosper-root13

axiom="X++X++X";

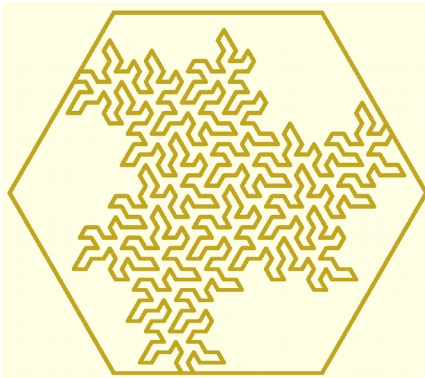
rules=["X=YF+XF++XF-YF--YF+XFXF++XF+YF-XF+YF--YF-XF-", "Y=+YF+XF++XF-YF+XF-YF--YFYF-XF++XF+YF--YF-XF", "F="];

angle=60;

n=2;

polygon=false;

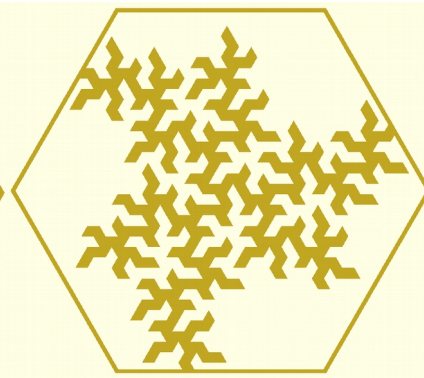
diferenza=0;



n=3;

polygon=true;

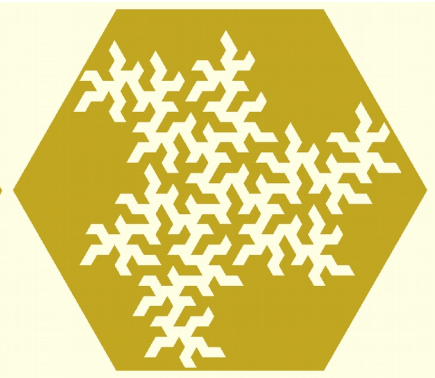
diferenza=0;



n=3;

polygon=true;

diferenza=1;



86-fractal1- root16

axiom="X++X++X";

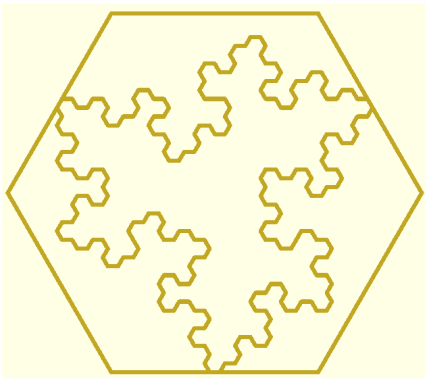
rules=["X=-YF+XF+XF-", "Y=+FY-FY-FX+", "F="];

angle=60;

n=4; rot==0;

polygon=false;

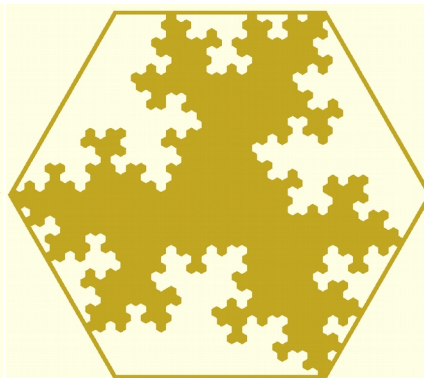
diferenza=0;



n=5; rot==30;

polygon=true;

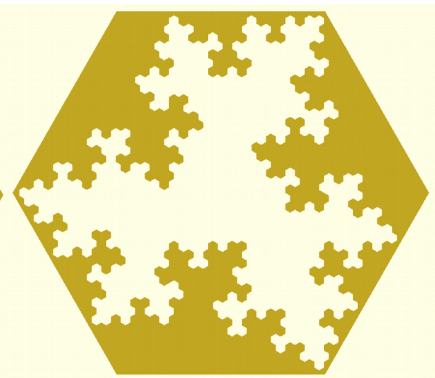
diferenza=0;



n=5; rot==30;

polygon=true;

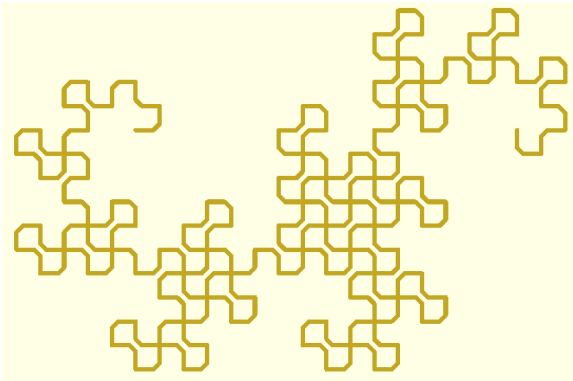
diferenza=1;



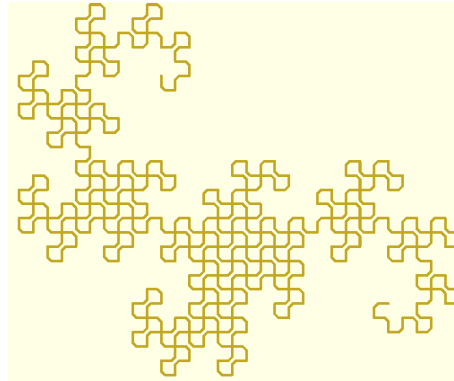
87- dragonLóbulos (not hexagon)

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

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



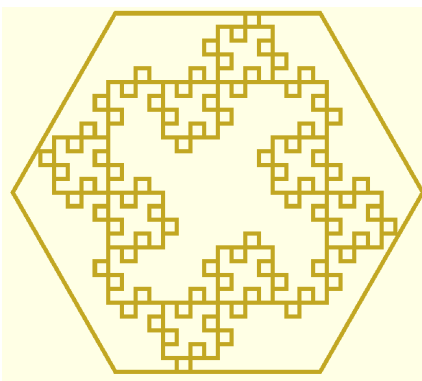
```
n=9;  
hexagono=false;
```



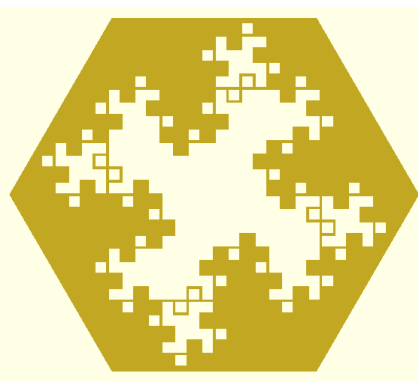
88- carpet6

```
axiom="F-F-F-F";  
rules=["F=F-b+F-F-F-Fb-F+b-F+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";

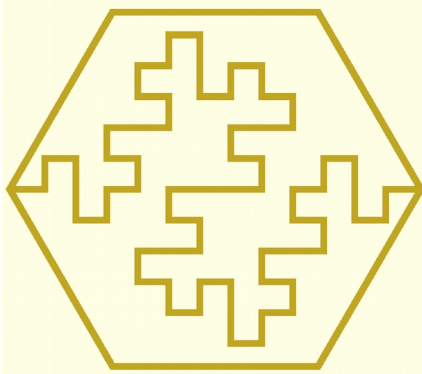
rules= ["F=F+F-F-F-G+F+F+F-F", "G=FFF"];

angle=90;

n=2;

polygon=false;

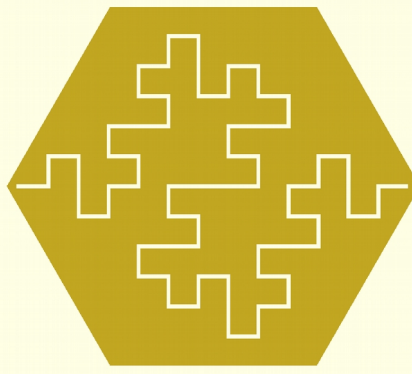
diferenza=0;



n=2;

polygon=false;

diferenza=1;



n=3;

polygon=false;

diferenza=1;

