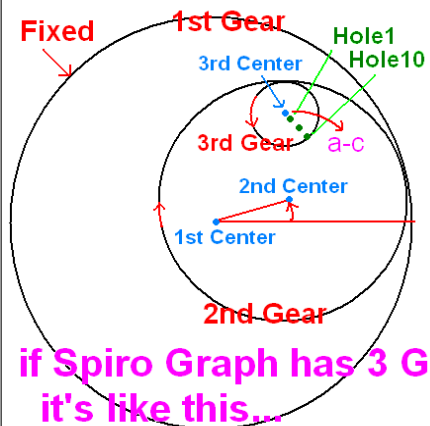
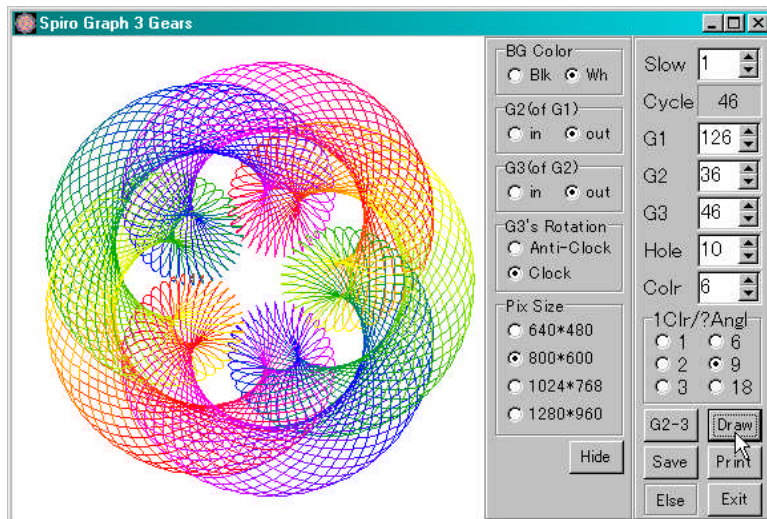


# Spiro Graph with 3 Gears



if Spiro Graph has 3 Gears..  
it's like this...

## \* System

Programmed on Windows XP + Delphi 5j by Ken Morisawa, Morisawa Products.

I programmed for user to watch PC's drawing. (cf. [Slow]function)

Print out high dpi, save BitMap file. (Please re-save GIF or PNG file)

Date is same as Version.

## \* How to use

Slow : Drawing Speed, fast 1-100 slow.

Cycle : automatic calculation. How many turn-rounds to need for the Spirograph along 1<sup>st</sup> gear.

G1 : 1<sup>st</sup> Gear. Small 10-144 big. It's fixed gear.

G2 : 2<sup>nd</sup> Gear. Small 10-144 big.

G3 : 3<sup>rd</sup> Gear. Small 10-144 big. This Gear has pen holes.  $G2 < G3$  is OK too.

Hole : G3's Pen holes. center is 0, on circumference is 10.

Colr : Change the color position. 0-19.

1Clr/?Angl : On setting 9, PC changes colors at each 9<sup>th</sup> angle.

G2-3 : Change the value of G2 & G3, and Draw.

Draw : Draw a Spirograph above settings.

Save : Save the Spirograph as BitMap file in program's folder. You'd better re-save as PNG file with MS-Paint. (I can program save procedure as only BitMap or Jpeg file.)

Print : Print the Spirograph on default printer on default paper. BG color is always white.

Exit : Close this program.

Else : Click on this panel, Extended menu will appear. With 2nd click, dis-appear.

## \* Extended menu

BG Color : Back ground color, Bl(black) or Wh(white), on PC Black is better.

G2(of G1) : G2's revolution is [in]-side or [out]-side of G1.

G3(of G2) : G3's revolution is [in]-side or [out]-side of G2.

G3's Rotation : 3rd gear's rotation. I programmed anti-clock moves is right.

Size of Pix : If you save as BitMap file select a size before.

Sample : Choose Num. and click [seT] to draw a spirograph.

## \* About this program

If you re-size the Window, this program draws adjust automatically.

I prepare Rainbow 20 colors, 1/360 1 color for 1<sup>st</sup> Gear. 360/20 makes odd zero, and colors always cycles just right.

File name format : S 144 018 074\_10 0 1 0 = S G1 G2 G3\_Hole G2(in out) G3(in out) G3(rotation)

## \* How to calculate the rounds to draw-up a Spirograph.

To solve this took me long time.

Make simplizing ratio G1:G2 and G1:G3.

These are G1b:G2b and G1b:G3b.

Next lowest common multiple of G2b and G3b.

It's the answer of the rounds to draw-up a Spirograph.

G1	G2	G3	G1:G2		G2:G3		Round Num.
			a	b			
100	42	20	50	21	5	1	21
100	45	25	20	9	4	1	9
100	48	25	25	12	4	1	12
100	50	26	2	1	50	13	13
100	60	26	5	3	50	13	39
100	60	25	5	3	4	1	3
100	60	27	5	3	100	27	27
100	70	20	10	7	5	1	7
100	80	20	5	4	5	1	4
100	75	22	4	3	50	11	33
100	75	24	4	3	25	6	6
100	70	25	10	7	4	1	7
100	70	24	10	7	25	6	42
96	42	20	16	7	24	5	35
96	48	20	2	1	24	5	5
112	48	20	7	3	28	5	15
119	49	20	17	7	119	20	140
119	50	20	119	50	119	20	100
117	51	20	39	17	117	20	340
117	51	21	39	17	39	7	119
117	51	15	39	17	39	5	85
117	50	15	117	50	39	5	50

Main Page

<http://www13.atwiki.jp/devulman/>

Down Load Page

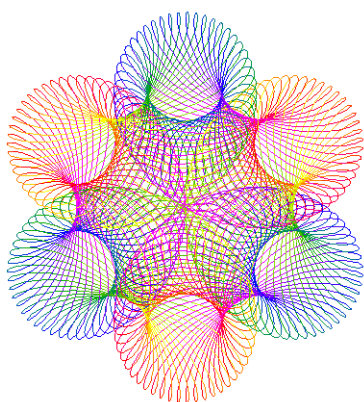
<http://www13.atwiki.jp/devulman/pages/31.html>

Sorry, my webs are in Japanese.

<http://www.youtube.com/watch?v=PZCPPbI3YME>

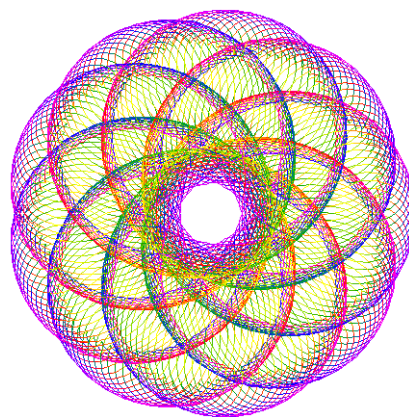
<http://www.youtube.com/watch?v=m2nNWXy3Axl>

<http://www.youtube.com/watch?v=rtiKEFIjrow>



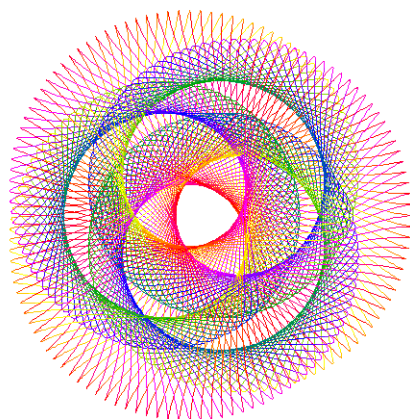
Spiro Graph (3 Gears)  
Cycle : 39  
1st Gear : 140  
2nd Gear : 28  
3rd Gear : 78  
Pen Hole : 8/10  
Colr Pos : 6  
Colr Angl : 6  
2nd : in  
3rd : in  
3rd : Anti-Clock

Programmed by Han horizontals  
with Windows XP + Delphi SJ



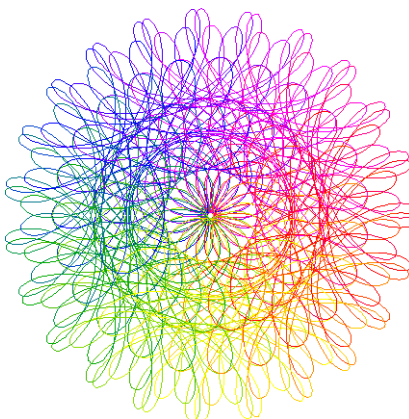
Spiro Graph (3 Gears)  
Cycle : 89  
1st Gear : 144  
2nd Gear : 83  
3rd Gear : 18  
Pen Hole : 8/10  
Colr Pos : 15  
Colr Angl : 2  
2nd : in  
3rd : out  
3rd : Anti-Clock

Programmed by Han horizontals  
with Windows XP + Delphi SJ



Spiro Graph (3 Gears)  
Cycle : 67  
1st Gear : 112  
2nd Gear : 67  
3rd Gear : 28  
Pen Hole : 10/10  
Colr Pos : 0  
Colr Angl : 6  
2nd : in  
3rd : out  
3rd : Clock

Programmed by Han horizontals  
with Windows XP + Delphi SJ



Spiro Graph (3 Gears)  
Cycle : 27  
1st Gear : 100  
2nd Gear : 15  
3rd Gear : 54  
Pen Hole : 10/10  
Colr Pos : 0  
Colr Angl : 18  
2nd : in  
3rd : in  
3rd : Anti-Clock

Programmed by Han horizontals  
with Windows XP + Delphi SJ