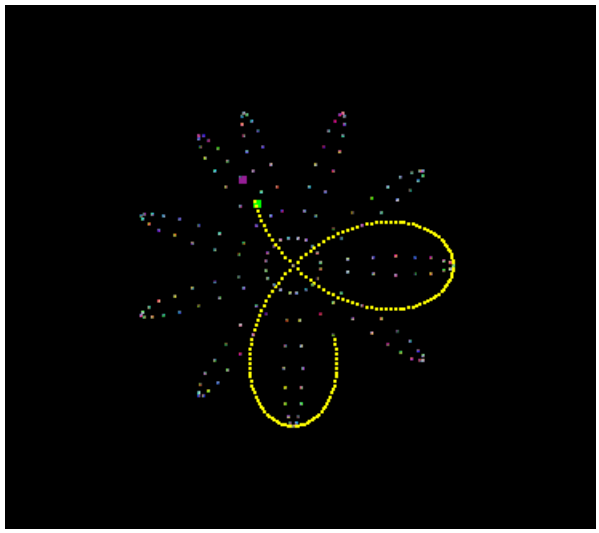
課題1:コンピュータアート

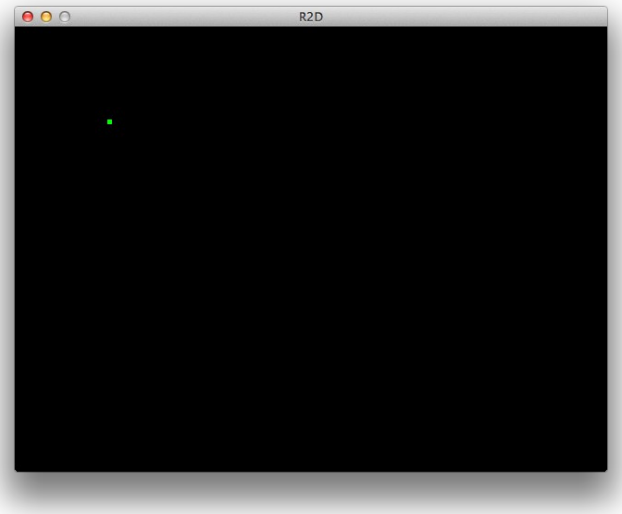
コンピュータに絵を描かせてみましょう。

複雑な計算を元に描かれる絵は芸術作品のようです。



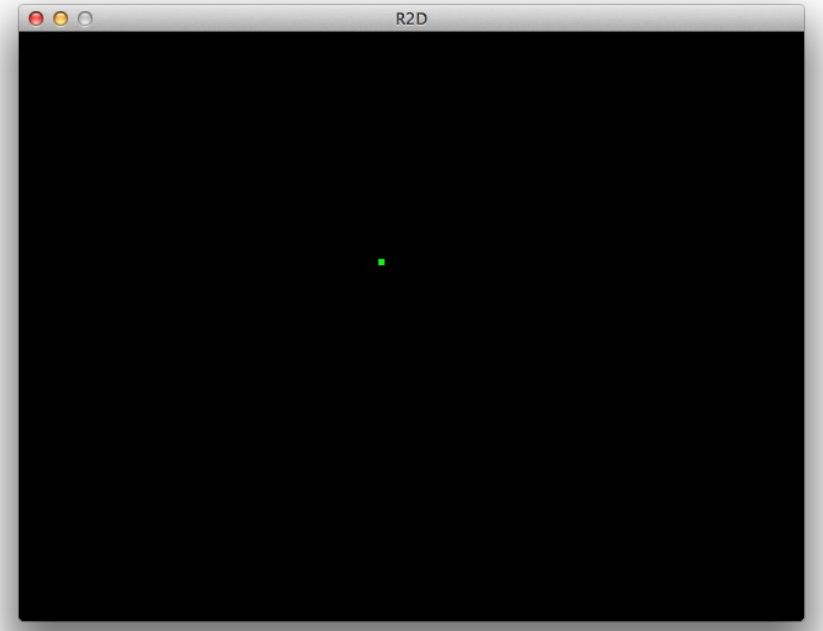
プログラムリスト 1(no1-1.rb):緑色の点を表示

```
001: require 'r2d'
002:
003: w = window
004:
005: s = Square.new(100, 100, 5, 'green')
006:
007: window :show
```



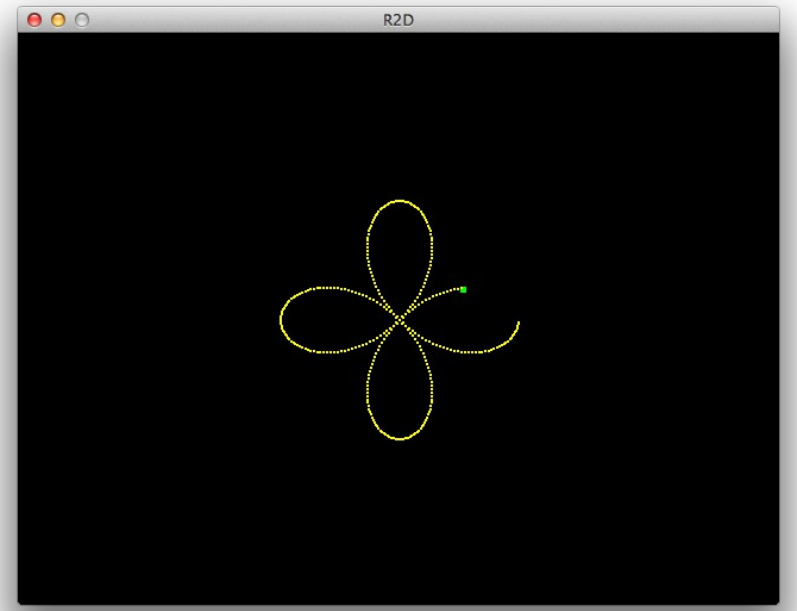
プログラムリスト 2(no1-2.rb) : 点の移動

```
001: require 'r2d'
002:
003: include Math
004:
005: w = window
006:
007: n = 2
008: t = 1
009: s = Square.new(100, 100, 5, 'green')
010:
011: update do
012:   rad = t * (PI / 180)
013:   s.x = w.w / 2 + 100 * cos(rad * n) * cos(rad)
014:   s.y = w.h / 2 + 100 * cos(rad * n) * sin(rad)
015:   t += 1
016: end
017:
018: window :show
```



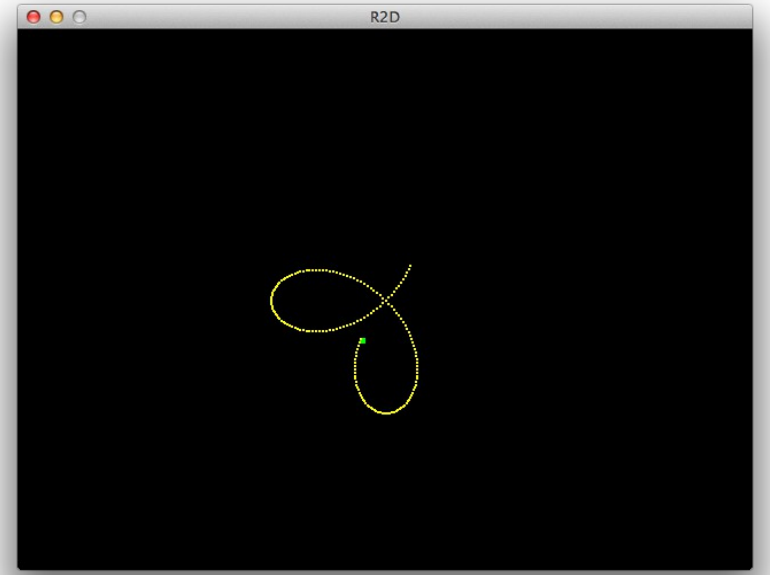
プログラムリスト 3(no1-3.rb) : 軌跡の表示

```
001: require 'r2d'
002:
003: include Math
004:
005: w = window
006:
007: n = 2
008: t = 1
009: s = Square.new(100, 100, 5, 'green')
010: ten = []
011:
012: update do
013:   rad = t * (PI / 180)
014:   s.x = w.w / 2 + 100 * cos(rad * n) * cos(rad)
015:   s.y = w.h / 2 + 100 * cos(rad * n) * sin(rad)
016:   ten << Square.new(s.x, s.y, 2, 'yellow')
017:   t += 1
018: end
019:
020: window :show
```



プログラムリスト4(no1-4.rb):軌跡が消えていく

```
001: require 'r2d'
002:
003: include Math
004:
005: w = window
006:
007: n = 2
008: t = 1
009: s = Square.new(100, 100, 5, 'green')
010: ten = []
011:
012: update do
013:   rad = t * (PI / 180)
014:   s.x = w.w / 2 + 100 * cos(rad * n) * cos(rad)
015:   s.y = w.h / 2 + 100 * cos(rad * n) * sin(rad)
016:   ten << Square.new(s.x, s.y, 2, 'yellow')
017:   if ten.length > 180
018:     ten.shift.remove
019:   end
020:   t += 1
021: end
022:
023: window :show
```



プログラムリスト 5(no1.rb) : 完成

```
001: require 'r2d'
002:
003: include Math
004:
005: w = window
006:
007: n = 2
008: t = 1
009: s = Square.new(100, 100, 5, 'green')
010: ten = []
011:
012: n2 = 10
013: s2 = Square.new(100, 100, 5, 'purple')
014: ten2 = []
015:
016: update do
017:   rad = t * (PI / 180)
018:   s.x = w.w / 2 + 100 * cos(rad * n) * cos(rad)
019:   s.y = w.h / 2 + 100 * cos(rad * n) * sin(rad)
020:   ten << Square.new(s.x, s.y, 2, 'yellow')
021:   if ten.length > 180
022:     ten.shift.remove
023:   end
024:   t += 1
025:
026:   s2.x = w.w / 2 + 100 * cos(rad * n2) * cos(rad)
027:   s2.y = w.h / 2 + 100 * cos(rad * n2) * sin(rad)
028:   ten2 << Square.new(s2.x, s2.y, 2, 'random')
029:   if ten2.length > 180
030:     ten2.shift.remove
031:   end
032: end
033:
034: window :show
```