

```

import processing.pdf.*;
boolean record;

int d = 1;

float theta1 = 0;
float theta2 = PI/2;
float theta3 = PI;
float theta4 = PI + PI/2;
float r = 0;
float degInc = 1;

//adjust these
float rInc = 1;
float degIncChange = 0;
float degIncChangeMult = .001;
float spiralW = 250;

void setup() {
  size(500, 500);
  background(255);

  //noStroke();
  smooth();
  fill(0);
}

void draw() {

  if (record) {
    // Note that #### will be replaced with the frame number. Fancy!
    String fileName = "a" + rInc + "-s" + degIncChange + "-d" + degIncChangeMult + "-f" + spiralW;
    beginRecord(PDF, fileName + "-####.pdf");
  }

  background(255);

  while(r <= spiralW){

    //draw the point
    float x1 = r * cos(theta1);
    float y1 = r * sin(theta1);
    float x2 = r * cos(theta2);
    float y2 = r * sin(theta2);
    float x3 = r * cos(theta3);
    float y3 = r * sin(theta3);
  }
}

```

```
float x4 = r * cos(theta4);  
float y4 = r * sin(theta4);
```

```
//theta1  
ellipse(x1+width/2, y1+height/2, d, d);  
//theta2  
ellipse(x2+width/2, y2+height/2, d, d);  
//theta3  
ellipse(x3+width/2, y3+height/2, d, d);  
//theta4  
ellipse(x4+width/2, y4+height/2, d, d);
```

```
//connect 1 and 2  
line(x1+width/2, y1+height/2, x2+width/2, y2+height/2);  
//connect 2 and 3  
line(x2+width/2, y2+height/2, x3+width/2, y3+height/2);  
//connect 3 and 4  
line(x3+width/2, y3+height/2, x4+width/2, y4+height/2);  
//connect 4 and 1  
line(x4+width/2, y4+height/2, x1+width/2, y1+height/2);
```

```
//update angle  
degInc = degIncChange + (degIncChange * degIncChangeMult);
```

```
theta1 += radians(degInc);  
theta2 += radians(degInc);  
theta3 += radians(degInc);  
theta4 += radians(degInc);
```

```
//update the length of radius  
r+=rInc;  
}
```

```
theta1 = 0;  
theta2 = PI/2;  
theta3 = PI;  
theta4 = PI + PI/2;  
r = 0;  
degInc = 5;
```

```
if (record) {  
  endRecord();  
  record = false;  
  println("frame printed...");
```

```

    }
}

void keyReleased(){

    if(key == 'a'){
        rInc += 1;
    }

    if(key == 's'){
        degIncChange += .1;
    }

    if(key == 'd'){
        degIncChangeMult += .01;
    }

    if(key == 'f')
    {
        spiralW += 2;
    }

    println("a: " + rInc + " s: " + degIncChange + " d: " + degIncChangeMult + " f: " + spiralW);
}

//Use a keypress so thousands of files aren't created
void mouseReleased() {
    record = true;
}

```