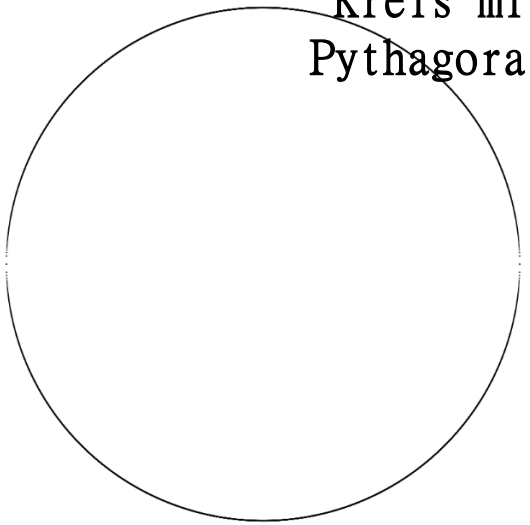
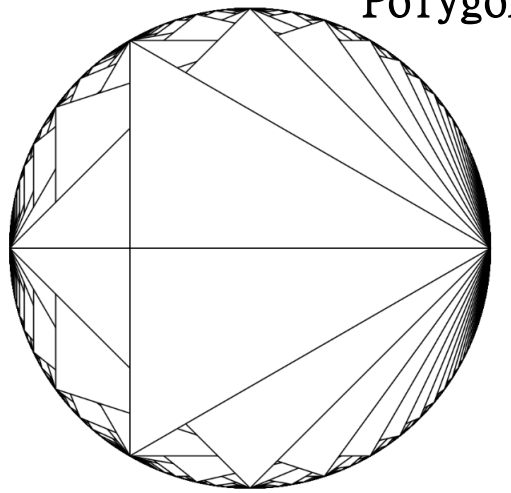
```
function setup() {
    let r = 200;
    let xpos = windowWidth / 2;
    let ypos = windowHeight / 2;
    createCanvas(windowWidth - 40, windowHeight - 40);

    drawCircle(xpos, ypos, r);
    //drawSpiral(xpos, ypos, 0.5, 5);
}

function drawCircle(xpos, ypos, r) {
    for (let x = 0; x <= r; x += 0.1) {
        let y = sqrt(r * r - x * x);

        point(x + xpos, y + ypos);
        point(x + xpos, -y + ypos);
        point(-x + xpos, y + ypos);
        point(-x + xpos, -y + ypos);
    }
}

function drawSpiral(xpos, ypos, growth, size) {
    let r = 0;
    for (let i = 0; i < size; i++) {
        for (let x = r; x >= -r; x--) {
            let y = sqrt(r * r - x * x);

            point(x + xpos, y + ypos);
            r += growth;
        }
        for (let x = r; x >= -r; x--) {
            let y = sqrt(r * r - x * x);

            point(-x + xpos, -y + ypos);
            r+=growth;
        }
    }
}
```

Kreis mit Pythagoras

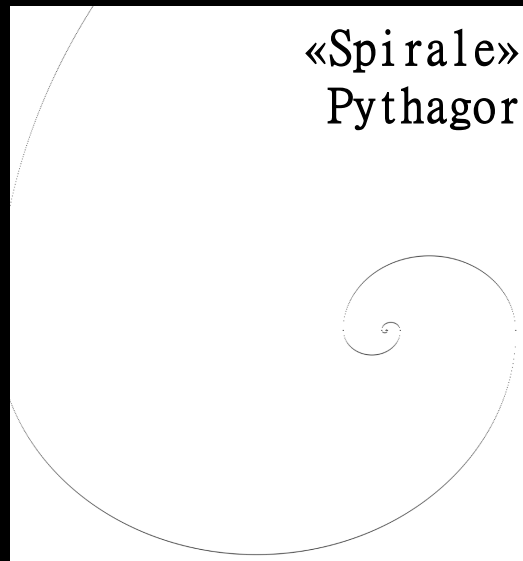


Polygone



«Spirale» mit Pythagoras 1

«Spirale» mit Pythagoras 2

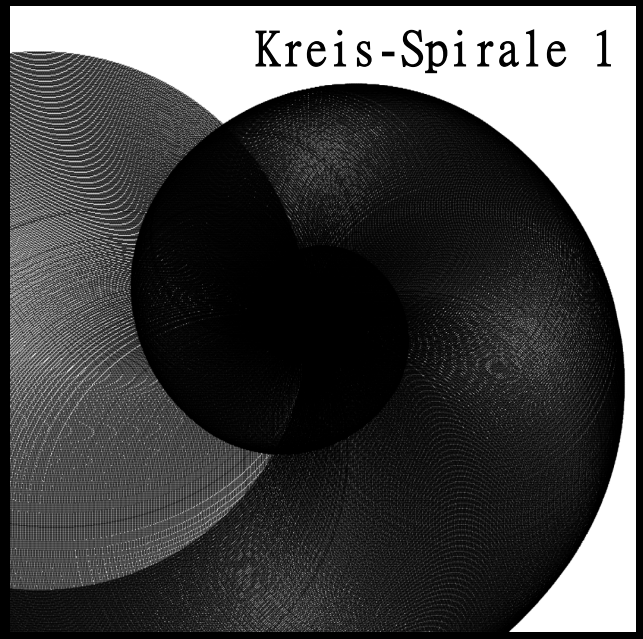


```
function setup() {
    let r = 200;
    let xpos = windowWidth * 0.8 / 2;
    let ypos = windowHeight * 0.8 / 2;
    createCanvas(windowWidth * 0.8, windowHeight * 0.8);

    drawCircle(xpos, ypos, r);
    //drawSpiral(xpos, ypos, 20, 5);
}

function drawCircle(xpos, ypos, r) {
    let x = -r;
    let y = 0;
    point(x + xpos, y + ypos);
    //1/8
    while (y > x) {
        let r1 = sqrt(x * x + (y - 1) * (y - 1));
        let r2 = sqrt((x + 1) * (x + 1) + (y - 1) * (y - 1));
        if (Math.abs(r1 - r) > Math.abs(r2 - r)) {
            x++;
            y--;
        } else {
            y--;
        }
        point(x + xpos, y + ypos);
    }
    //2/8
    while (x < 0) {
        let r1 = sqrt((x + 1) * (x + 1) + (y - 1) * (y - 1));
        let r2 = sqrt((x + 1) * (x + 1) + y * y);
        if (Math.abs(r1 - r) > Math.abs(r2 - r)) {
            x++;
        } else {
            x++;
            y--;
        }
        point(x + xpos, y + ypos);
    }
    //3/8
    // (usw. für alle 8 Kreisabschnitte...)
}
```

Kreis mit Bresenham

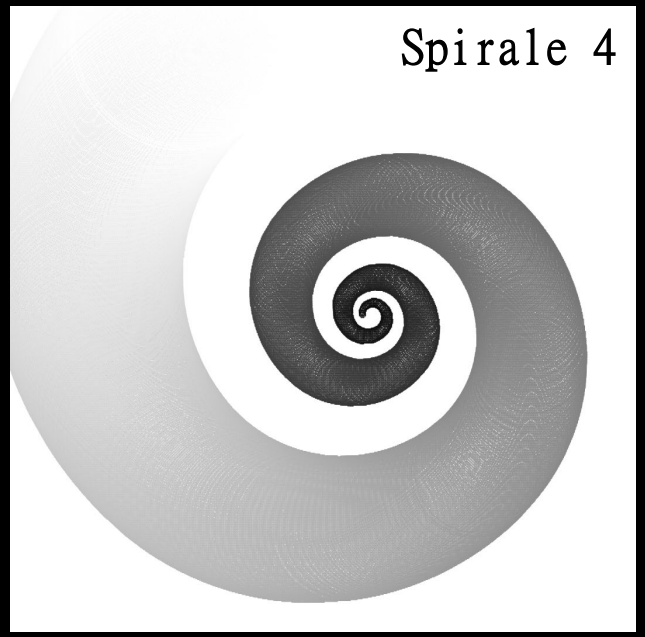
Spirale mit Bresenham

```
function setup() {
    let r = 200;
    let xpos = windowWidth * 0.8 / 2;
    let ypos = windowHeight * 0.8 / 2;
    createCanvas(windowWidth * 0.8, windowHeight * 0.8);

    //drawSpiral(xpos, ypos, 12, 6);
    drawSpiral(xpos, ypos, 20, 3);
}

function drawSpiral(xpos, ypos, growth, size) {
    growth *= 0.01;
    let r = 10;
    let x = -r;
    let y = 0;

    drawCircle(x + xpos, y + ypos, r / 3);
    r += growth;
    for (let i = 0; i <= size; i++) {
        console.log(x + " " + y);
        //1/8
        while (y >= x) {
            let r0 = sqrt((x - 1) * (x - 1) + (y - 1) * (y - 1));
            let r1 = sqrt(x * x + (y - 1) * (y - 1));
            let r2 = sqrt((x + 1) * (x + 1) + (y - 1) * (y - 1));
            if (Math.abs(r1 - r) > Math.abs(r2 - r)) {
                x++;
                y--;
            } else if (Math.abs(r0 - r) > Math.abs(r1 - r)) {
                y--;
            } else {
                x--;
                y--;
            }
            drawCircle(x + xpos, y + ypos, r / 3);
            r += growth;
        }
        //2/8
        // (usw. für alle 8 Spiralenabschnitte...)
    }
    function drawCircle(xpos, ypos, r) {
        // (...)
    }
}
```



Spiralen aus grösser werdenden Kreisen mit Bresenham

```
//(...)

let red = 255;
let green = 255;
let blue = 255;

//(...)

//Spirale 3
if (green > 0) {
    green -= 0.2;
} else if (blue > 0) {
    blue -= 0.2;
} else if (red > 0) {
    red -= 0.2;
}

//Spirale 1
red = random(255) * 0.5 + 127.5;
green = random(255);
blue = random(255) * 0.5 + 127.5;

//Spirale 4
red = r * 2;
green = r * 2;
blue = r * 2;

//(...)
```



Experimente mit Farbe