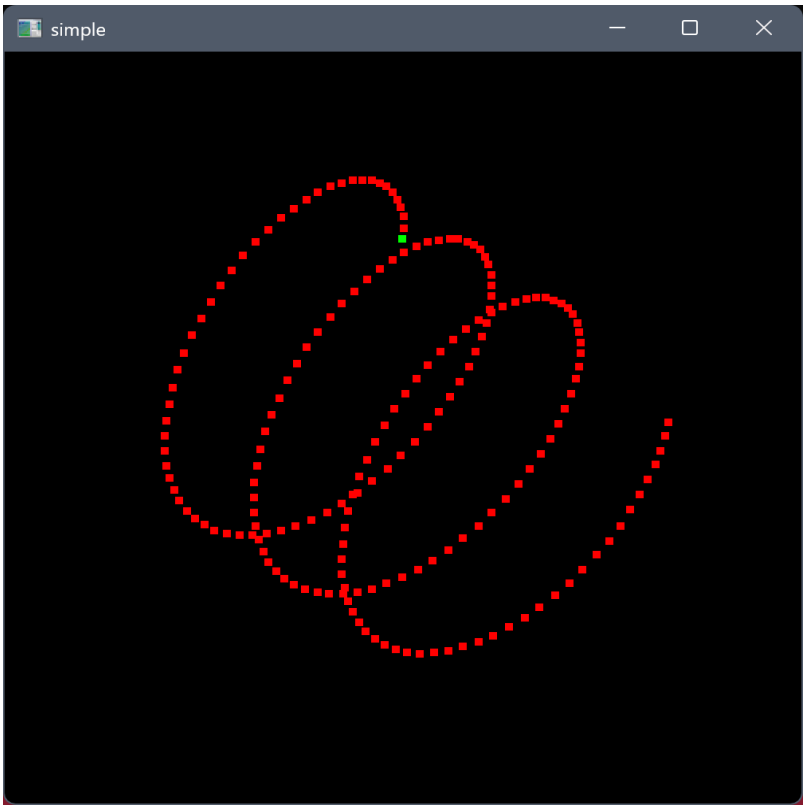
2025-04-19_CG_09_나선_02_시작점 강조하기

📁 예제 설명: 시작점 다른 색깔 표시하기

📝 목표 출력



📁 해결 코드

📝 핵심 코드

```
glBegin(GL_POINTS);
bool isFirst = true;
z = -50.0f;
for (angle = 0.0f; angle <= (2.0f * GL_PI) * 3.0f; angle += 0.1f) {

    x = 50.0f * cos(angle);
    y = 50.0f * sin(angle);

    if (isFirst) {
        glColor3f(0.0f, 1.0f, 0.0f);
        isFirst = false;
    }
```

```
    else {
        glColor3f(1.0f, 0.0f, 0.0f);
    }

    glVertex3f(x, y, z);
    z += 0.5f;
}
glEnd();
```

📝 전체 코드

```
#include <GL/glut.h>
#include <stdio.h>
#include <iostream>

#define GL_PI 3.1415f

void RenderScene(void) {

    GLfloat x, y, z, angle;

    glClear(GL_COLOR_BUFFER_BIT);
    glColor3f(1.0f, 0.0f, 0.0f);
    glPointSize(5.0f);

    glPushMatrix();
    glRotatef(45, 1.0f, 0.0f, 0.0f);
    glRotatef(45, 0.0f, 1.0f, 0.0f);

    glBegin(GL_POINTS);
    bool isFirst = true; // 📌
    z = -50.0f;
    for (angle = 0.0f; angle <= (2.0f * GL_PI) * 3.0f; angle += 0.1f) {

        x = 50.0f * cos(angle);
        y = 50.0f * sin(angle);

        if (isFirst) { // 📌 시작 좌표 출력 및 시작점 색상 변경
            std::cout << "x: " << x << " y: " << y << " z: " << z << std::endl;
            glColor3f(0.0f, 1.0f, 0.0f);
            isFirst = false;
        }
        else {
            glColor3f(1.0f, 0.0f, 0.0f);
        }

        glVertex3f(x, y, z);
        z += 0.5f;
```

```
    }
    glEnd();

    glPopMatrix();

    glFlush();
}

void ChangeSize(GLsizei w, GLsizei h) {

    GLint wSize = 100.0f;
    GLfloat aspectRatio;

    if (h == 0) h = 1;

    glViewport(0, 0, w, h);

    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();

    aspectRatio = (GLfloat)w / (GLfloat)h;
    if (aspectRatio >= 1.0f) {
        glOrtho(-wSize*aspectRatio, wSize*aspectRatio, -wSize, wSize, -wSize, wSize);
    }
    else {
        glOrtho(-wSize, wSize, -wSize/aspectRatio, wSize/aspectRatio, -wSize, wSize);
    }

    glMatrixMode(GL_MODELVIEW);
    glLoadIdentity();
}

void SetupRC(void) {
    glClearColor(0.0f, 0.0f, 0.0f, 1.0f);
}

int main(int argc, char** argv) {

    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE ¦ GLUT_RGB);
    glutInitWindowSize(500, 500);
    glutInitWindowPosition(400, 400);

    glutCreateWindow("simple");

    SetupRC();

    glutDisplayFunc(RenderScene);
    glutReshapeFunc(ChangeSize);
```

```
    glutMainLoop();
}
```

📁 시작점 좌표는?

- x: 50
- y: 0
- z: -50