

Código 18: Curva de Bezier

```
#ifdef WIN32
    #include <windows.h>
#endif
#include <GL/glut.h>

GLfloat ctrlpoints[4][3] = { { -6.0, 7.0, 0.0}, { 9.0, -9.0, 0.0},
                             { -9.0, -9.0, 0.0}, { 5.0, 8.0, 0.0} };

void inicializa(void)
{
    glClearColor(1.0, 1.0, 1.0, 0.0);
    glMapf(GL_MAP1_VERTEX_3, 0, 1, 3, 4, &ctrlpoints[0][0]);
    glEnable(GL_MAP1_VERTEX_3);
}

void display(void)
{
    int i;

    glClear(GL_COLOR_BUFFER_BIT);
    //curva de bezier
    glLineWidth(3);
    glColor3f(0.0, 0.0, 0.0);
    glBegin(GL_LINE_STRIP);
        for (i = 0; i <= 30; i++)
            glEvalCoord1f((GLfloat) i/30.0);
    glEnd();
    // puntos de control
    glPointSize(6.0);
    glColor3f(1.0, 0.0, 0.0);
    glBegin(GL_POINTS);
        for (i = 0; i < 4; i++)
            glVertex3fv(&ctrlpoints[i][0]);
    glEnd();
    glFlush();
}

void reshape(int w, int h)
{
    glViewport(0, 0, (GLsizei) w, (GLsizei) h);
    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();
    glOrtho(-10.0, 10.0, -10.0, 10.0, -10.0, 10.0);
    glMatrixMode(GL_MODELVIEW);
    glLoadIdentity();
}

int main(int argc, char** argv)
{
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(500, 500);
    glutInitWindowPosition(100, 100);
    glutCreateWindow("Curva de Bezier");
    inicializa();
    glutDisplayFunc(display);
    glutReshapeFunc(reshape);
    glutMainLoop();
    return 0;
}
```

