



**Daffodil**  
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## Creating a Four-Star Design Using Polygon

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## Understanding the Graph:

Central to the graph is the origin (0, 0), a pivotal reference point from which all coordinates are measured.

**X-Axis Range:** -10 to 10

**Y-Axis Range:** -10 to 10

**Graph Dimensions:** 20x20 Units

**Divisions:** Each unit contains three subdivisions, equating to 60 divisions along each axis.

### Plotted Stars:

Within this graph, four stars emerge, each occupying a unique position and delineated by distinct coordinates:

1. Magenta Star Coordinates: (1, 4), (5, 5), (1, 6), (-1, 6), (-5, 5), (-1, 4), (0, 0)
2. Red Star Coordinates: (-4, 1), (-5, 5), (-6, 1), (-6, -1), (-5, -5), (-4, -1), (0, 0)
3. Blue Star Coordinates: (-1, -4), (-5, -5), (-1, -6), (1, -6), (5, -5), (1, -4), (0, 0)
4. Yellow Star Coordinates: (4, -1), (5, -5), (6, -1), (6, 1), (5, 5), (4, 1), (0, 0)

## Code:

```
#include <GL/gl.h>
#include <GL/glut.h>

void display (void) {
    glClear (GL_COLOR_BUFFER_BIT);

    // Draw the Magenta star
    glColor3f (1.0, 0.0, 1.0);
    glBegin (GL_POLYGON);
    glVertex2d (100, 400);
    glVertex2d (500, 500);
    glVertex2d (100, 600);
    glVertex2d (0, 1000);
    glVertex2d (-100, 600);
    glVertex2d (-500, 500);
    glVertex2d (-100, 400);
    glVertex2d (0, 0);
    glEnd();

    // Draw the red star
    glColor3f (1.0, 0.0, 0.0);
    glBegin (GL_POLYGON);
    glVertex2d (-400, 100);
    glVertex2d (-500, 500);
    glVertex2d (-600, 100);
    glVertex2d (-1000, 0);
    glVertex2d (-600, -100);
    glVertex2d (-500, -500);
    glVertex2d (-400, -100);
    glVertex2d (0, 0);
    glEnd();

    // Draw the blue star
    glColor3f (0.0, 0.0, 1.0);
    glBegin (GL_POLYGON);
    glVertex2d (-100, -400);
    glVertex2d (-500, -500);
    glVertex2d (-100, -600);
    glVertex2d (0, -1000);
    glVertex2d (100, -600);
    glVertex2d (500, -500);
    glVertex2d (100, -400);
    glVertex2d (0, 0);
    glEnd();

    // Draw the yellow star
    glColor3f (1.0, 1.0, 0.0);
    glBegin (GL_POLYGON);
    glVertex2d (400, -100);
    glVertex2d (500, -500);
    glVertex2d (600, -100);
    glVertex2d (1000, 0);
    glVertex2d (600, 100);
    glVertex2d (500, 500);
    glVertex2d (400, 100);
    glVertex2d (0, 0);
    glEnd();

    glFlush ();
}
```

```
}  
  
int main (int argc, char** argv) {  
    glutInit (&argc, argv);  
    glutInitDisplayMode (GLUT_SINGLE);  
    glutInitWindowSize (800, 800);  
    glutInitWindowPosition (100, 100);  
    glutCreateWindow ("Four Star Design");  
    glClearColor (0.0, 0.0, 0.0, 0.0);  
    glMatrixMode (GL_PROJECTION);  
    glLoadIdentity ();  
    gluOrtho2D (-1200, 1200, -1200, 1200);  
    glutDisplayFunc (display);  
    glutMainLoop ();  
    return 0;  
}
```

## Output:

