Juan José Gutiérrez Salcedo
Mul A

Sí, es posible crear un dodecaedro utilizando pentágonos con THREE.BufferGeometry() en JavaScript. Aquí hay un ejemplo de cómo podría hacerse:

javascript Copy code

```javascript
// Crear el dodecaedro
const vertices = [
  // Vértices
  [-1, 1, 1], [1, 1, 1], [1, 1, -1], [-1, 1, -1],
  [-1, -1, 1], [1, -1, 1], [1, -1, -1], [-1, -1, -1],
  [0, phi, 1/phi], [0, phi, -1/phi], [0, -phi, 1/phi], [0, -phi, -1/phi],
  [1/phi, 0, phi], [-1/phi, 0, phi], [1/phi, 0, -phi], [-1/phi, 0, -phi],
  [phi, 1/phi, 0], [-phi, 1/phi, 0], [phi, -1/phi, 0], [-phi, -1/phi, 0]
];
const faces = [
  // Caras
  [0, 1, 8, 9, 16], [1, 2, 10, 11, 8], [2, 3, 12, 13, 10],
  [3, 4, 14, 15, 12], [4, 5, 16, 17, 14], [5, 0, 9, 18, 16],
  [6, 7, 11, 10, 13], [7, 8, 11, 7, 19], [6, 12, 15, 19, 7],
  [13, 15, 14, 17, 18], [18, 9, 1, 0, 5], [19, 15, 13, 12, 6],
  [17, 16, 9, 18, 14], [11, 2, 1, 8, 7]
];

const geometry = new THREE.BufferGeometry();

// Crear buffer de vértices
const verticesArray = new Float32Array(faces.length * 5 * 3);
for (let i = 0; i < faces.length; i++) {
  for (let j = 0; j < 5; j++) {
    const vertex = vertices[faces[i][j]];
    verticesArray[i * 15 + j * 3] = vertex[0];
    verticesArray[i * 15 + j * 3 + 1] = vertex[1];
    verticesArray[i * 15 + j * 3 + 2] = vertex[2];
  }
}

// Crear buffer de índices
const indicesArray = new Uint16Array(faces.length * 5);
for (let i = 0; i < faces.length; i++) {
  for (let j = 0; j < 5; j++) {
    indicesArray[i * 5 + j] = i * 5 + j;
  }
}

// Asignar los buffers a la geometría
geometry.setAttribute('position', new THREE.BufferAttribute(verticesArray, 3
geometry.setIndex(new THREE.BufferAttribute(indicesArray, 1));

// Crear la malla y agregarla a la escena
const material =
```

Claro, aquí te muestro un ejemplo de cómo crear una figura de 12 lados (dodecaedro) en JavaScript utilizando las clases `BufferGeometry` y `BufferAttribute` de Three.js:

Juan José Gutiérrez Salcedo

Mul A

javascript Copy code

```javascript
// Definir los vértices del dodecaedro
const vertices = [
  1, 1, 1,    // 0
  1, 1, -1,   // 1
  1, -1, 1,   // 2
  1, -1, -1,  // 3
  -1, 1, 1,   // 4
  -1, 1, -1,  // 5
  -1, -1, 1,  // 6
  -1, -1, -1, // 7
  0, 1 / phi, phi,    // 8
  0, 1 / phi, -phi,   // 9
  0, -1 / phi, phi,   // 10
  0, -1 / phi, -phi,  // 11
  1 / phi, phi, 0,    // 12
  -1 / phi, phi, 0,   // 13
  1 / phi, -phi, 0,   // 14
  -1 / phi, -phi, 0,  // 15
  phi, 0, 1 / phi,    // 16
  -phi, 0, 1 / phi,   // 17
  phi, 0, -1 / phi,   // 18
  -phi, 0, -1 / phi   // 19
];

// Definir las caras del dodecaedro
const caras = [
  0, 8, 16, 9, 4, // Cara 0
  4, 9, 18, 5, 14, // Cara 1
  14, 5, 11, 19, 6, // Cara 2
  6, 19, 17, 7, 16, // Cara 3
  0, 12, 13, 1, 8, // Cara 4
  12, 2, 10, 13, 3, // Cara 5
  3, 15, 18, 9, 8, // Cara 6
  15, 17, 19, 11, 10, // Cara 7
  2, 6, 16, 17, 10, // Cara 8
  7, 18, 15, 3, 19, // Cara 9
  0, 4, 14, 6, 2, // Cara 10
  1, 13, 10, 17, 15 // Cara 11
];
```

¡Claro! Aquí te dejo un ejemplo de cómo puedes crear un dodecaedro regular en JavaScript utilizando Three.js:

Juan José Gutiérrez Salcedo

Mul A

javascript Copy code

```javascript
// Definir la longitud de las aristas del dodecaedro
const a = 1.0;

// Definir los vértices del dodecaedro
const vertices = [
  [-a, a, a],
  [a, a, a],
  [a, -a, a],
  [-a, -a, a],
  [-a, a, -a],
  [a, a, -a],
  [a, -a, -a],
  [-a, -a, -a],
  [0, a/phi, a*phi],
  [0, -a/phi, a*phi],
  [0, a/phi, -a*phi],
  [0, -a/phi, -a*phi],
  [a/phi, a*phi, 0],
  [-a/phi, a*phi, 0],
  [a/phi, -a*phi, 0],
  [-a/phi, -a*phi, 0],
  [a*phi, 0, a/phi],
  [-a*phi, 0, a/phi],
  [a*phi, 0, -a/phi],
  [-a*phi, 0, -a/phi]
];
```

Juan José Gutiérrez Salcedo

Mul A

```
// Definir las caras del dodecaedro
const caras = [
  [0, 8, 16],
  [0, 16, 9],
  [1, 10, 17],
  [1, 17, 11],
  [2, 12, 18],
  [2, 18, 13],
  [3, 14, 19],
  [3, 19, 15],
  [4, 9, 8],
  [4, 8, 14],
  [5, 13, 18],
  [5, 18, 15],
  [6, 11, 17],
  [6, 17, 12],
  [7, 15, 19],
  [7, 19, 10],
  [0, 9, 4],
  [1, 11, 6],
  [2, 13, 5],
  [3, 15, 7],
  [8, 19, 14],
  [8, 10, 19],
  [9, 16, 4],
  [10, 7, 17],
  [11, 18, 6],
  [12, 5, 13],
  [14, 19, 3],
  [14, 4, 16],
  [16, 8, 0],
  [17, 2, 13],
  [17, 13, 12],
  [18, 11, 6],
  [18, 12, 15],
  [19, 14, 18],
  [4, 14, 3],
  [5, 15, 12],
  [5, 2, 13],
  [6, 17, 7],
  [7, 10, 19]
];
```

Juan José Gutiérrez Salcedo

Mul A