

Reference > curve()

curve()

Draws a curve using a Catmull-Rom spline.

Spline curves can form shapes and curves that slope gently. They're like cables that are attached to a set of points. Splines are defined by two anchor points and two control points.

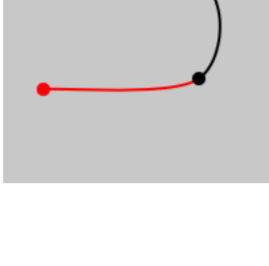
The first two parameters, `x1` and `y1`, set the first control point. This point isn't drawn and can be thought of as the curve's starting point.

The next four parameters, `x2`, `y2`, `x3`, and `y3`, set the two anchor points. The anchor points are the start and end points of the curve's visible segment.

The seventh and eighth parameters, `x4` and `y4`, set the last control point. This point isn't drawn and can be thought of as the curve's ending point.

Spline curves can also be drawn in 3D using WebGL mode. The 3D version of `curve()` has twelve arguments because each point has x-, y-, and z-coordinates.

Examples



```
function setup() {
  createCanvas(100, 100);

  background(200);

  // Draw a black spline curve.
  noFill();
  strokeWeight(1);
  stroke(0);
  curve(5, 26, 73, 24, 73, 61, 15, 65);

  // Draw red spline curves from the anchor points to the
  control points.
  stroke(255, 0, 0);
  curve(5, 26, 5, 26, 73, 24, 73, 61);
  curve(73, 24, 73, 61, 15, 65, 15, 65);

  // Draw the anchor points in black.
  strokeWeight(5);
  stroke(0);
  point(73, 24);
  point(73, 61);

  // Draw the control points in red.
  stroke(255, 0, 0);
  point(5, 26);
  point(15, 65);

  describe(
    'A gray square with a curve drawn in three segments. The
    curve is a sideways U shape with red segments on top and
    bottom, and a black segment on the right. The endpoints of all
    the segments are marked with dots.'
```

```
let x1 = 5;
let y1 = 26;
let isChanging = false;

function setup() {
  createCanvas(100, 100);

  describe(
    'A gray square with a curve drawn in three segments. The
    curve is a sideways U shape with red segments on top and
    bottom, and a black segment on the right. The endpoints of all
    the segments are marked with dots.'
  );
}

function draw() {
  background(200);

  // Draw a black spline curve.
  noFill();
  strokeWeight(1);
  stroke(0);
  curve(x1, y1, 73, 24, 73, 61, 15, 65);

  // Draw red spline curves from the anchor points to the
  control points.
  stroke(255, 0, 0);
  curve(x1, y1, x1, y1, 73, 24, 73, 61);
  curve(73, 24, 73, 61, 15, 65, 15, 65);
```

```
function setup() {
  createCanvas(100, 100);

  background('skyblue');

  // Draw the red balloon.
  fill('red');
  curve(-150, 275, 50, 60, 50, 60, 250, 275);

  // Draw the balloon string.
  line(50, 60, 50, 80);

  describe('A red balloon in a blue sky.');
```

```
function setup() {
  createCanvas(100, 100, WEBGL);

  describe('A red balloon in a blue sky.');
```

```
function draw() {
  background('skyblue');

  // Rotate around the y-axis.
  rotateY(frameCount * 0.01);

  // Draw the red balloon.
  fill('red');
  curve(-200, 225, 0, 0, 10, 0, 0, 10, 0, 200, 225, 0);

  // Draw the balloon string.
  line(0, 10, 0, 0, 30, 0);
}
```

Syntax

```
curve(x1, y1, x2, y2, x3, y3, x4, y4)
```

```
curve(x1, y1, z1, x2, y2, z2, x3, y3, z3, x4, y4, z4)
```

Parameters

x1	Number: x-coordinate of the first control point.
y1	Number: y-coordinate of the first control point.
x2	Number: x-coordinate of the first anchor point.
y2	Number: y-coordinate of the first anchor point.
x3	Number: x-coordinate of the second anchor point.
y3	Number: y-coordinate of the second anchor point.
x4	Number: x-coordinate of the second control point.
y4	Number: y-coordinate of the second control point.
z1	Number: z-coordinate of the first control point.
z2	Number: z-coordinate of the first anchor point.
z3	Number: z-coordinate of the second anchor point.
z4	Number: z-coordinate of the second control point.

This page is generated from the comments in `src/core/shape/curves.js`. Please feel free to edit it and submit a pull request!

Related References

bezier Draws a Bézier curve.	bezierDetail Sets the number of segments used to draw Bézier curves in WebGL mode.	bezierPoint Calculates coordinates along a Bézier curve using interpolation.	bezierTangent Calculates coordinates along a line that's tangent to a Bézier curve.
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