

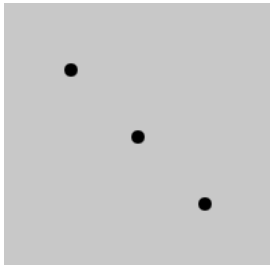
Creates a new **p5.Vector** object.

A vector can be thought of in different ways. In one view, a vector is like an arrow pointing in space. Vectors have both magnitude (length) and direction. This view is helpful for programming motion.

A vector's components determine its magnitude and direction. For example, calling `createVector(3, 4)` creates a new **p5.Vector** object with an x-component of 3 and a y-component of 4. From the origin, this vector's tip is 3 units to the right and 4 units down.

p5.Vector objects are often used to program motion because they simplify the math. For example, a moving ball has a position and a velocity. Position describes where the ball is in space. The ball's position vector extends from the origin to the ball's center. Velocity describes the ball's speed and the direction it's moving. If the ball is moving straight up, its velocity vector points straight up. Adding the ball's velocity vector to its position vector moves it, as in `pos.add(vel)`. Vector math relies on methods inside the **p5.Vector** class.

Examples



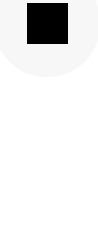
```
function setup() {
  createCanvas(100, 100);

  background(200);

  // Create p5.Vector objects.
  let p1 = createVector(25, 25);
  let p2 = createVector(50, 50);
  let p3 = createVector(75, 75);

  // Draw the dots.
  strokeWeight(5);
  point(p1);
  point(p2);
  point(p3);

  describe('Three black dots form a diagonal line from top
left to bottom right.');
```



```
let pos;
let vel;

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

  // Create p5.Vector objects.
  pos = createVector(50, 100);
  vel = createVector(0, -1);

  describe('A black dot moves from bottom to top on a gray
square. The dot reappears at the bottom when it reaches the
top.');
```

```
function draw() {
  background(200);

  // Add velocity to position.
  pos.add(vel);

  // If the dot reaches the top of the canvas,
  // restart from the bottom.
  if (pos.y < 0) {
    pos.y = 100;
  }

  // Draw the dot.
  strokeWeight(5);
  point(pos);
}
```



Syntax

```
createVector([x], [y], [z])
```



Parameters

- x
- Number: x component of the vector.
- y
- Number: y component of the vector.
- z
- Number: z component of the vector.

Returns

p5.Vector: new **p5.Vector** object.

This page is generated from the comments in [src/math/math.js](#). Please feel free to edit it and submit a pull request!

Related References

add Adds to a vector's x, y, and z components.	angleBetween Calculates the angle between two vectors.	array Returns the vector's components as an array of numbers.	clampToZero Replaces the components of a p5.Vector that are very close to zero with zero.
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