normalize()

Scales the components of a p5.Vector object so that its magnitude is 1.

The static version of `normalize()`, as in `p5.Vector.normalize(v)`, returns a new p5.Vector object and doesn't change the original.

Examples

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

  background(200);

  // Create a p5.Vector.
  let v = createVector(10, 20, 2);

  // Normalize.
  v.normalize();

  // Prints "p5.Vector Object : [0.445..., 0.890..., 0.089...]" to the
console.
  print(v.toString());
}
```

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

  background(200);

  // Create a p5.Vector.
  let v0 = createVector(10, 20, 2);

  // Create a normalized copy.
  let v1 = p5.Vector.normalize(v0);

  // Prints "p5.Vector Object : [10, 20, 2]" to the console.
  print(v0.toString());
  // Prints "p5.Vector Object : [0.445..., 0.890..., 0.089...]" to the
console.
  print(v1.toString());
}
```

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

  describe("A red and blue arrow extend from the center of a
circle. Both arrows follow the mouse, but the blue arrow's
length is fixed to the circle's radius.");
}

function draw() {
  background(240);

  // Vector to the center.
  let v0 = createVector(50, 50);

  // Vector from the center to the mouse.
  let v1 = createVector(mouseX - 50, mouseY - 50);

  // Circle's radius.
  let r = 25;

  // Draw the red arrow.
  drawArrow(v0, v1, 'red');

  // Draw the blue arrow.
  v1.normalize();
  drawArrow(v0, v1.mult(r), 'blue');

  // Draw the circle.
  noFill();
  circle(50, 50, r * 2);
}
```

Syntax

```
normalize()
```

```
normalize(v, [target])
```

Parameters

v	p5.Vector: The vector to normalize
target	p5.Vector: The vector to receive the result

Returns

p5.Vector: normalized p5.Vector.

This page is generated from the comments in src/math/p5.Vector.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.