dot()

Calculates the dot product of two vectors.

The dot product is a number that describes the overlap between two vectors. Visually, the dot product can be thought of as the "shadow" one vector casts on another. The dot product's magnitude is largest when two vectors point in the same or opposite directions. Its magnitude is 0 when two vectors form a right angle.

The version of `dot()` with one parameter interprets it as another p5.Vector object.

The version of `dot()` with multiple parameters interprets them as the `x`, `y`, and `z` components of another vector.

The static version of `dot()`, as in `p5.Vector.dot(v1, v2)`, is the same as calling `v1.dot(v2)`.

Examples

```
function setup() {
  // Create p5.Vector objects.
  let v1 = createVector(3, 4);
  let v2 = createVector(3, 0);

  // Calculate the dot product.
  let dp = v1.dot(v2);

  // Prints "9" to the console.
  print(dp);
}
```

```
function setup() {
  // Create p5.Vector objects.
  let v1 = createVector(1, 0);
  let v2 = createVector(0, 1);

  // Calculate the dot product.
  let dp = p5.Vector.dot(v1, v2);

  // Prints "0" to the console.
  print(dp);
}
```

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

  describe('Two arrows drawn on a gray square. A black arrow
points to the right and a red arrow follows the mouse. The
text "v1 • v2 = something" changes as the mouse moves.');
}

function draw() {
  background(200);

  // Center.
  let v0 = createVector(50, 50);

  // Draw the black arrow.
  let v1 = createVector(30, 0);
  drawArrow(v0, v1, 'black');

  // Draw the red arrow.
  let v2 = createVector(mouseX - 50, mouseY - 50);
  drawArrow(v0, v2, 'red');

  // Display the dot product.
  let dp = v2.dot(v1);
  text(`v2 • v1 = ${dp}`, 10, 20);
}

// Draws an arrow between two vectors.
function drawArrow(base, vec, myColor) {
```

Syntax

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

```
dot(v)
```

```
dot(v1, v2)
```

Parameters

x	Number: x component of the vector.
y	Number: y component of the vector.
z	Number: z component of the vector.
v	p5.Vector: p5.Vector to be dotted.
v1	p5.Vector: first p5.Vector.
v2	p5.Vector: second p5.Vector.

Returns

Number: dot product.

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.