

# reflect()

Reflects a vector about a line in 2D or a plane in 3D.

The orientation of the line or plane is described by a normal vector that points away from the shape.

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

## Examples

```
function setup() {
  // Create a normal vector.
  let n = createVector(0, 1);
  // Create a vector to reflect.
  let v = createVector(4, 6);

  // Reflect v about n.
  v.reflect(n);

  // Prints "p5.Vector Object : [4, -6, 0]" to the console.
  print(v.toString());
}
```

```
function setup() {
  // Create a normal vector.
  let n = createVector(0, 1);

  // Create a vector to reflect.
  let v0 = createVector(4, 6);

  // Create a reflected vector.
  let v1 = p5.Vector.reflect(v0, n);

  // Prints "p5.Vector Object : [4, -6, 0]" to the console.
  print(v1.toString());
}
```

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

  describe('Three arrows extend from the center of a gray square with a vertical line down its middle. A black arrow points to the right, a blue arrow points to the bottom left, and a red arrow points to the bottom right.');
}

function draw() {
  background(200);

  // Draw a vertical line.
  line(50, 0, 50, 100);

  // Create a normal vector.
  let n = createVector(1, 0);

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

  // Create a vector to reflect.
  let v1 = createVector(30, 40);

  // Create a reflected vector.
  let v2 = p5.Vector.reflect(v1, n);

  // Scale the normal vector for drawing.
  n.setMag(30);
```

## Syntax

```
reflect(surfaceNormal)
```

```
reflect(incidentVector, surfaceNormal, [target])
```

## Parameters

surfaceNormal `p5.Vector`: `p5.Vector` to reflect about.  
 incidentVector `p5.Vector`: vector to be reflected.  
 target `p5.Vector`: vector to receive the result.

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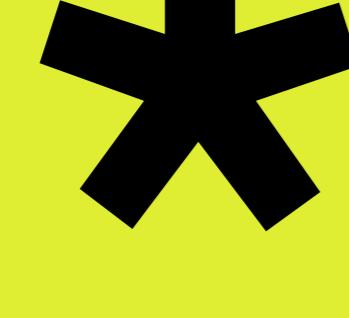
## Related References

[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 vector that are very close to zero with zero.



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