

map()

Re-maps a number from one range to another.

For example, calling `map(2, 0, 10, 0, 100)` returns 20. The first three arguments set the original value to 2 and the original range from 0 to 10. The last two arguments set the target range from 0 to 100. 20's position in the target range [0, 100] is proportional to 2's position in the original range [0, 10].

The sixth parameter, `withinBounds`, is optional. By default, `map()` can return values outside of the target range. For example, `map(11, 0, 10, 0, 100)` returns 110. Passing `true` as the sixth parameter constrains the remapped value to the target range. For example, `map(11, 0, 10, 0, 100, true)` returns 100.

Examples



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

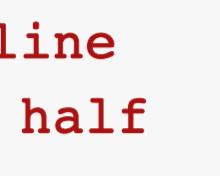
  describe('Two horizontal lines. The top line grows
  horizontally as the mouse moves to the right. The bottom line
  also grows horizontally but is scaled to stay on the left half
  of the canvas.');
}

function draw() {
  background(200);

  // Draw the top line.
  line(0, 25, mouseX, 25);

  // Remap mouseX from [0, 100] to [0, 50].
  let x = map(mouseX, 0, 100, 0, 50);

  // Draw the bottom line.
  line(0, 75, x, 75);
}
```



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

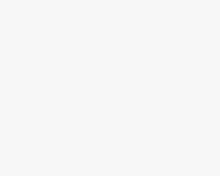
  describe('A circle changes color from black to white as the
  mouse moves from left to right.');
}

function draw() {
  background(200);

  // Remap mouseX from [0, 100] to [0, 255]
  let c = map(mouseX, 0, 100, 0, 255);

  // Style the circle.
  fill(c);

  // Draw the circle.
  circle(50, 50, 20);
}
```



Syntax

```
map(value, start1, stop1, start2, stop2, [withinBounds])
```



Parameters

<code>value</code>	Number: the value to be remapped.
<code>start1</code>	Number: lower bound of the value's current range.
<code>stop1</code>	Number: upper bound of the value's current range.
<code>start2</code>	Number: lower bound of the value's target range.
<code>stop2</code>	Number: upper bound of the value's target range.
<code>withinBounds</code>	Boolean: constrain the value to the newly mapped range.

Returns

Number: remapped number.

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Related References

<code>abs</code>	<code>ceil</code>	<code>constrain</code>	<code>dist</code>
Calculates the absolute value of a number.	Calculates the closest integer value that is greater than or equal to a number.	Constrains a number between a minimum and maximum value.	Calculates the distance between two points.

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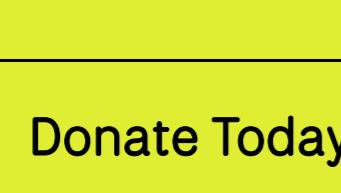
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