

# PI

A `Number` constant that's approximately 3.1416.

`PI` is the mathematical constant  $\pi$ . It's useful for many tasks that involve rotation and oscillation. For example, calling `rotate(PI)` rotates the coordinate system `PI` radians, which is a half turn (180°).

Note: `TWO_PI` radians equals 360°, `PI` radians equals 180°, `HALF_PI` radians equals 90°, and `QUARTER_PI` radians equals 45°.

## Examples

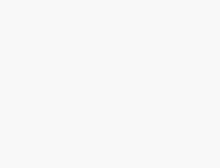


```
function setup() {
  createCanvas(100, 100);

  background(200);

  // Draw an arc from 0 to PI.
  arc(50, 50, 80, 80, 0, PI);

  describe('The bottom half of a circle drawn in white on a gray background.');
}
```



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

  background(200);

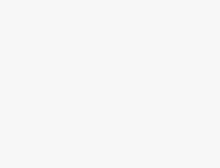
  // Translate the origin to the center.
  translate(50, 50);

  // Draw a line.
  line(0, 0, 40, 0);

  // Rotate a half turn.
  rotate(PI);

  // Draw the same line, rotated.
  line(0, 0, 40, 0);

  describe('A horizontal black line on a gray background.');
}
```



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

  describe(
    'A red circle and a blue circle oscillate from left to right on a gray background. The circles drift apart, then meet in the middle, over and over again.'
  );

  function draw() {
    background(200);

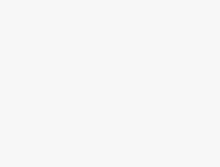
    // Translate the origin to the center.
    translate(50, 50);

    // Calculate the x-coordinates.
    let x1 = 40 * sin(frameCount * 0.05);
    let x2 = 40 * sin(frameCount * 0.05 + PI);

    // Style the oscillators.
    noStroke();

    // Draw the red oscillator.
    fill(255, 0, 0);
    circle(x1, 0, 20);

    // Draw the blue oscillator.
    fill(0, 0, 255);
    circle(x2, 0, 20);
  }
}
```

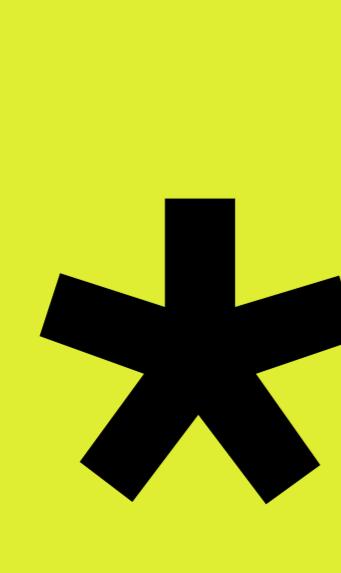


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AUTO allows us to automatically set the width or height of an element (but not both), based on the current height and width of the element.



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