

translate()

Translates the coordinate system.

By default, the origin `(0, 0)` is at the sketch's top-left corner in 2D mode and center in WebGL mode. The `translate()` function shifts the origin to a different position. Everything drawn after `translate()` is called will appear to be shifted. There are two ways to call `translate()` with parameters that set the origin's position.

The first way to call `translate()` uses numbers to set the amount of translation. The first two parameters, `x` and `y`, set the amount to translate along the positive `x`- and `y`-axes. For example, calling `translate(20, 30)` translates the origin 20 pixels along the `x`-axis and 30 pixels along the `y`-axis. The third parameter, `z`, is optional. It sets the amount to translate along the positive `z`-axis. For example, calling `translate(20, 30, 40)` translates the origin 20 pixels along the `x`-axis, 30 pixels along the `y`-axis, and 40 pixels along the `z`-axis.

The second way to call `translate()` uses a `p5.Vector` object to set the amount of translation. For example, calling `translate(myVector)` uses the `x`-, `y`-, and `z`-components of `myVector` to set the amount to translate along the `x`-, `y`-, and `z`-axes. Doing so is the same as calling `translate(myVector.x, myVector.y, myVector.z)`.

By default, transformations accumulate. For example, calling `translate(10, 0)` twice has the same effect as calling `translate(20, 0)` once. The `push()` and `pop()` functions can be used to isolate transformations within distinct drawing groups.

Note: Transformations are reset at the beginning of the draw loop. Calling `translate(10, 0)` inside the `draw()` function won't cause shapes to move continuously.

Examples

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

    describe('A white circle on a gray background.');
}

function draw() {
    background(200);

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

    // Draw a circle at coordinates (0, 0).
    circle(0, 0, 40);
}
```

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

    describe(
        'Two circles drawn on a gray background. The blue circle
        on the right overlaps the red circle at the center.'
    );
}

function draw() {
    background(200);

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

    // Draw the red circle.
    fill('red');
    circle(0, 0, 40);

    // Translate the origin to the right.
    translate(25, 0);

    // Draw the blue circle.
    fill('blue');
    circle(0, 0, 40);
}
```

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

    describe('A white circle moves slowly from left to right on
    a gray background.');
}

function draw() {
    background(200);

    // Calculate the x-coordinate.
    let x = frameCount * 0.2;

    // Translate the origin.
    translate(x, 50);

    // Draw a circle at coordinates (0, 0).
    circle(0, 0, 40);
}
```

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

    describe('A white circle on a gray background.');
}

function draw() {
    background(200);

    // Create a p5.Vector object.
    let v = createVector(50, 50);

    // Translate the origin by the vector.
    translate(v);

    // Draw a circle at coordinates (0, 0).
    circle(0, 0, 40);
}

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

    describe(
        'Two spheres sitting side-by-side on gray background. The
        sphere at the center is red. The sphere on the right is blue.'
    );
}

function draw() {
    background(200);

    // Turn on the lights.
    lights();

    // Style the spheres.
    noStroke();

    // Draw the red sphere.
    fill('red');
    sphere(10);

    // Translate the origin to the right.
    translate(30, 0, 0);

    // Draw the blue sphere.
    fill('blue');
    sphere(10);
}
```

Syntax

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

Parameters

<code>x</code>	Number: amount to translate along the positive <code>x</code> -axis.
<code>y</code>	Number: amount to translate along the positive <code>y</code> -axis.
<code>z</code>	Number: amount to translate along the positive <code>z</code> -axis.

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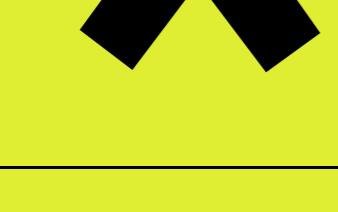
Related References

[applyMatrix](#) Applies a transformation matrix to the coordinate system.

[resetMatrix](#) Clears all transformations applied to the coordinate system.

[rotate](#) Rotates the coordinate system.

[rotateX](#) Rotates the coordinate system about the `x`-axis in WebGL mode.



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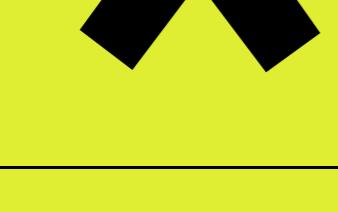
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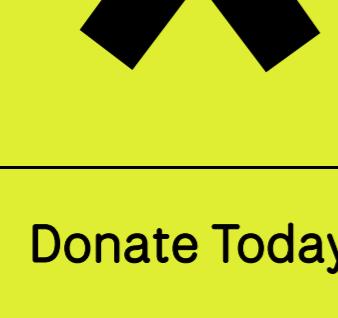
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