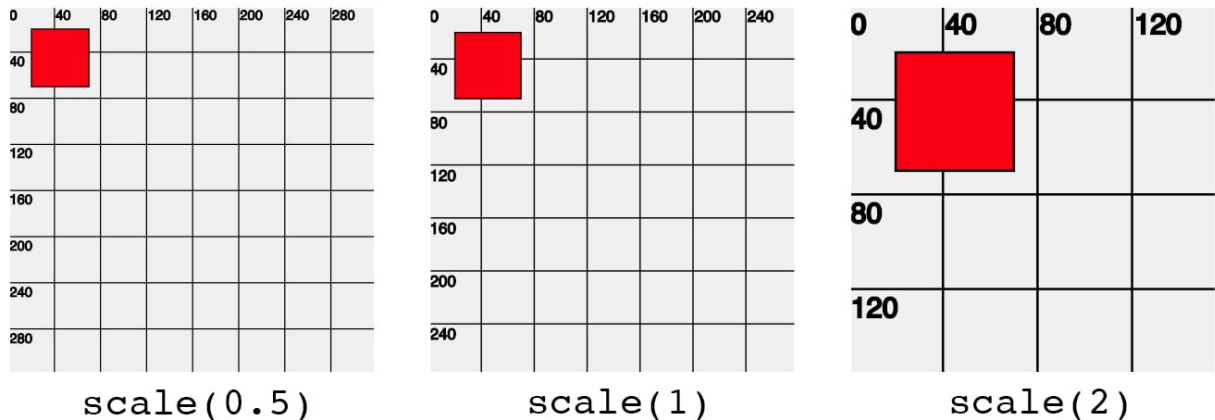


Scale

5 min

`scale()` is another function that transforms the p5.js coordinate system. As shown in the image below, you can see that the `scale()` function changes the size of the coordinate system as well the elements placed on it.



Notice how the size of the shape's strokes also gets larger. This is because `scale()` enlarges the whole p5.js coordinate system, not just the shape. In a sense, the `scale()` function is like zooming in and out of the canvas.

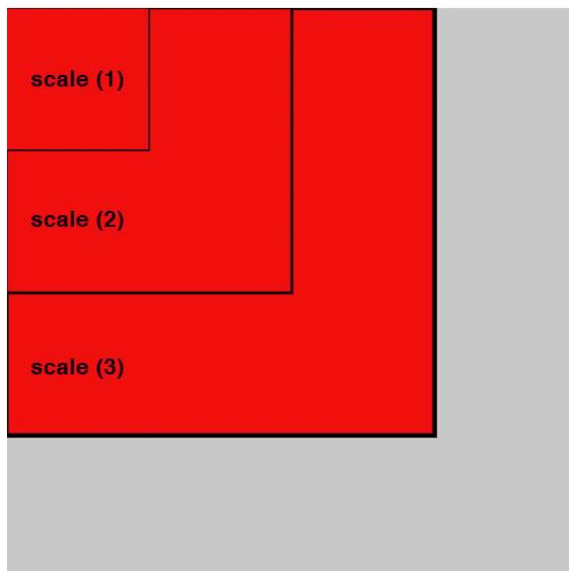
The `scale()` function can take two arguments but must have at least one to represent the percentage amount for scaling the canvas. Scale values are written in decimal percentages. For example, `scale(2.0)` multiplies the size of the coordinate system and all of its elements by 200%. The default scale for the p5.js canvas is 1.0 or 100%.

```
scale(s, y);
```

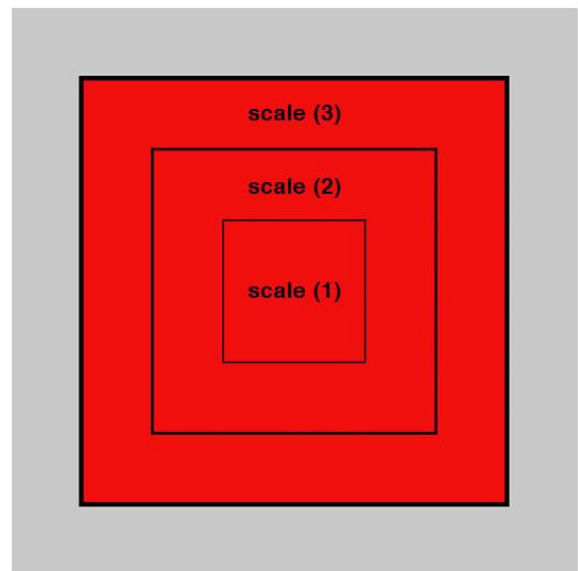
Let's take a closer look at the syntax above:

- `s` represents the percentage value to scale the canvas. It is also the percentage to scale the canvas along the x-axis if the second `y` [argument](#) is given.
- `y` can optionally be given to represent the percentage value to scale the canvas along the y-axis.

Similar to the `rotate()` function, if you want to scale a shape from its center, you would need to set the origin point of the shape to `CENTER`. In the image below, you can see the difference between scaling from a shape's `CORNER` versus its `CENTER`.



Scale From Corner



Scale From Center

Instructions

1.

Above the first `rect()` function, scale the rectangle down by 0.5. This means the rectangle will scale down by 50%.

Hint

The syntax for scaling a shape is:

```
scale(value);
```

where `value` is a decimal number. To scale the canvas by 250%, your code will look like this:

```
scale(2.5);
```

2.

Above the second `rect()` function, scale the rectangle up by a value of 4. This means it will scale up by 400%.

Hint

The syntax for scaling a shape is:

```
scale(value);
```

where `value` is a decimal number.

3.

Below the last `scale()` function that scaled the rectangle by 400%, set the origin point of the rectangle to be `CENTER`.

Hint

You can use the `rectMode()` function to specify a rectangle's origin point—either as `CENTER` or `CORNER`.

sketch.js

```
function setup() {  
  createCanvas(windowWidth, windowHeight);  
}  
  
function draw() {  
  background(0);  
  fill(255, 0, 0);  
  
  // TODO: Scale the rectangle down by 0.5  
  scale(0.5);  
  rect(0, 0, 120, 120); // First rectangle  
  
  fill(0, 0, 255);  
  
  // TODO: Scale the rectangle up by 4  
  scale(4);  
  
  // TODO: Set the rectangle's origin point to be its center  
  rectMode(CENTER);  
  rect(100, 100, 120, 120); // Second rectangle  
}
```