



COMP 125:

Rotation and Translation

Week 12, Lecture 17



Agenda

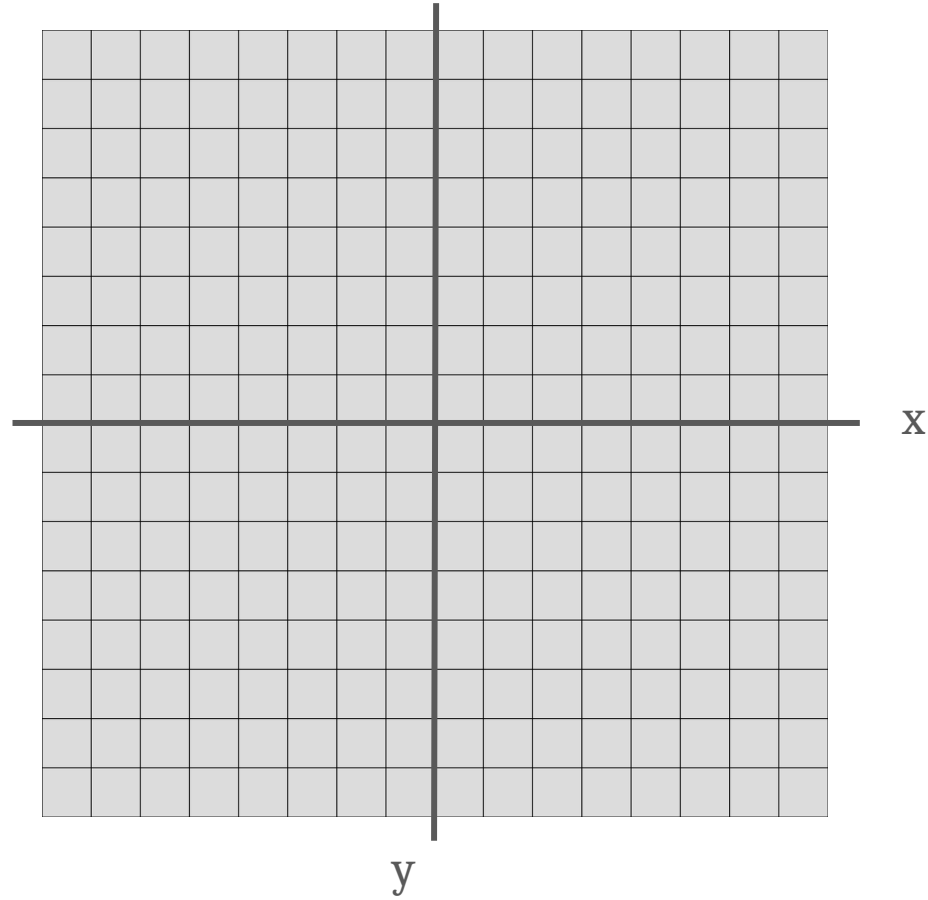
- The Canvas - again!
- Translation
- Rotation

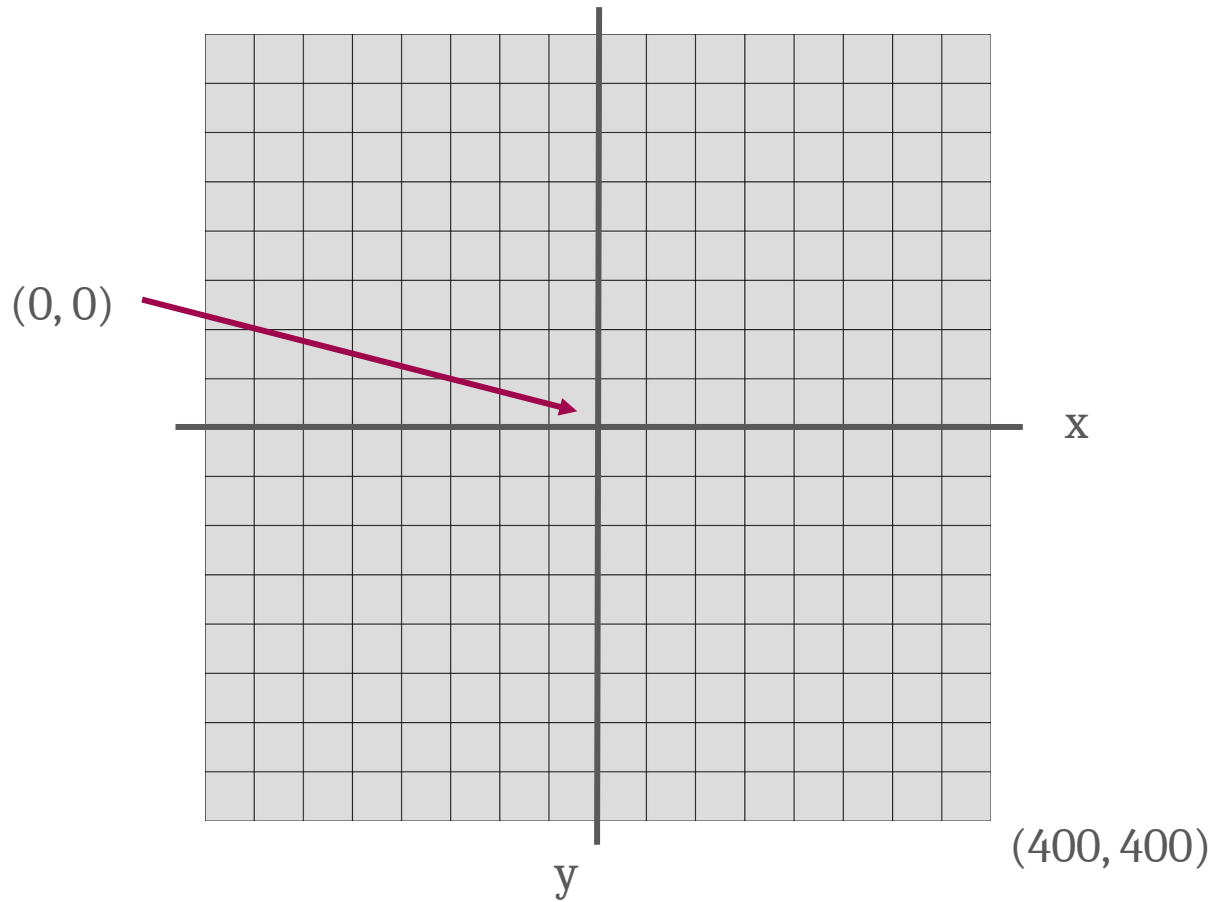
The Canvas

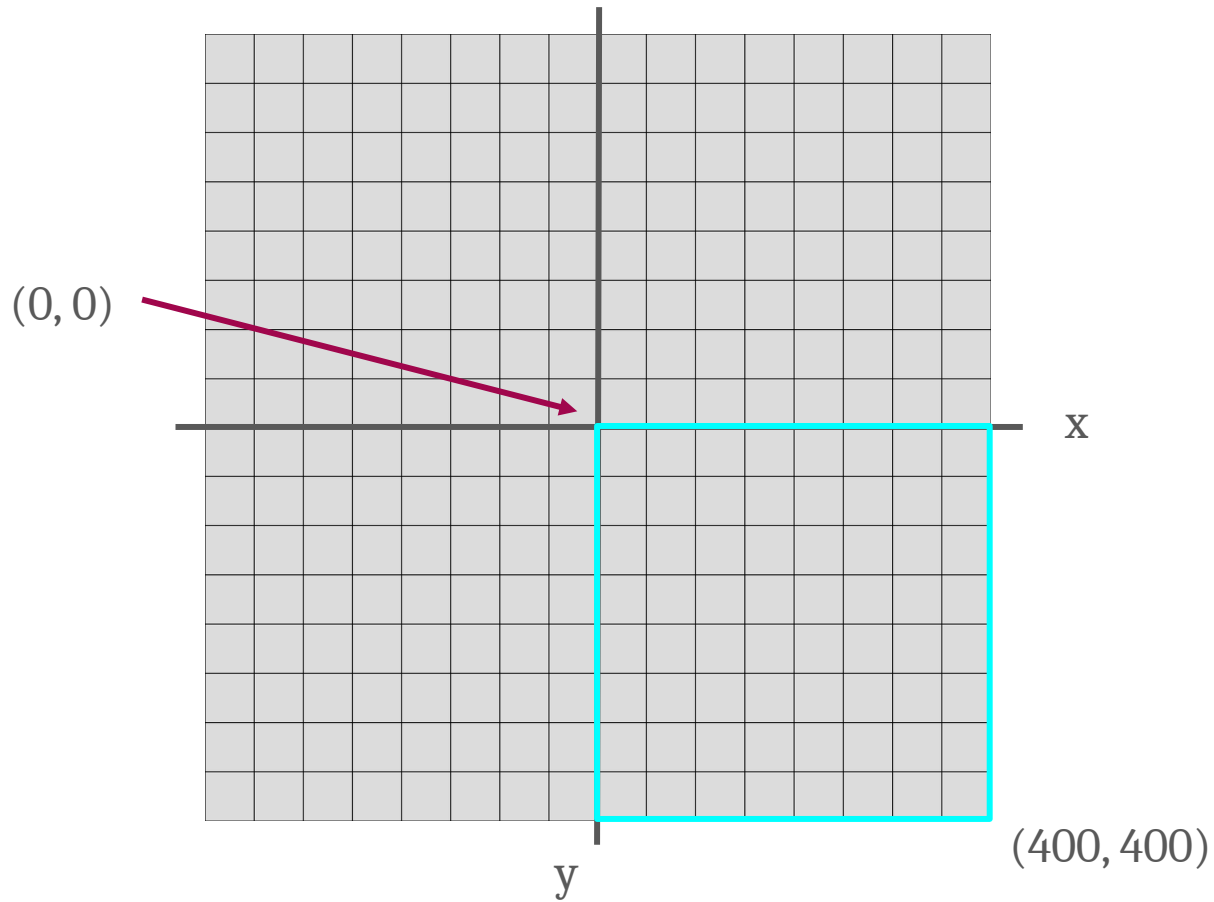
- What we see
- “Origin” is $(0, 0)$ in the upper left

but

- p5 actually renders far outside this area!







☐ Auto-refresh

Beneficial ghost

Sketch Files +

< sketch.js •

index.html

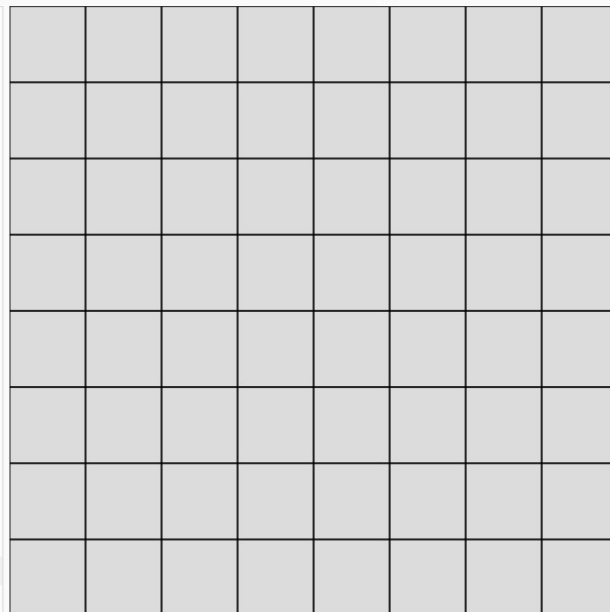
leaf.png

JS sketch.js ▾

style.css

```
1 function setup() {  
2   createCanvas(400, 400);  
3 }  
4  
5 function preload(){  
6   leaf = loadImage("leaf.png")  
7 }  
8  
9 function draw() {  
10  background(220);  
11  
12  step = 50  
13  for (x = -width*2; x < width*2; x = x + step){  
14    line(x, -height*2, x, height*2)  
15  }  
16  for (y = -height*2; y < height*2; y = y + step){  
17    line(-width*2, y, width*2, y)  
18  }  
19  
20 }
```

Preview



☐ Auto-refresh

Beneficial ghost

Sketch Files +

< sketch.js •

index.html

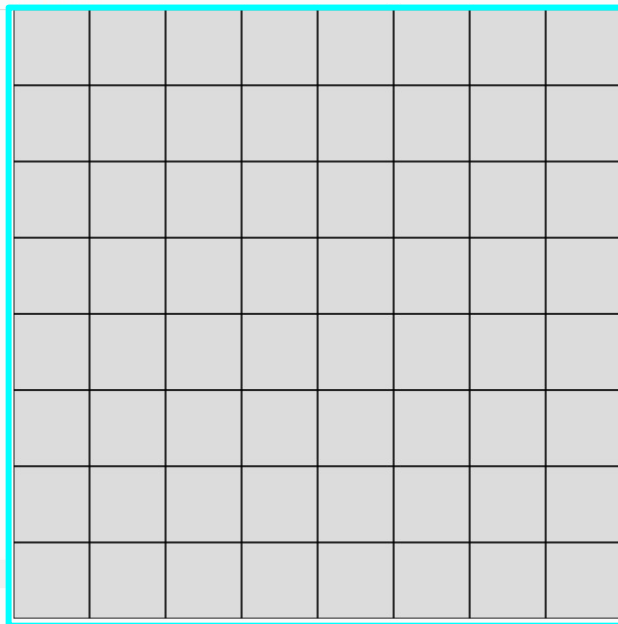
leaf.png

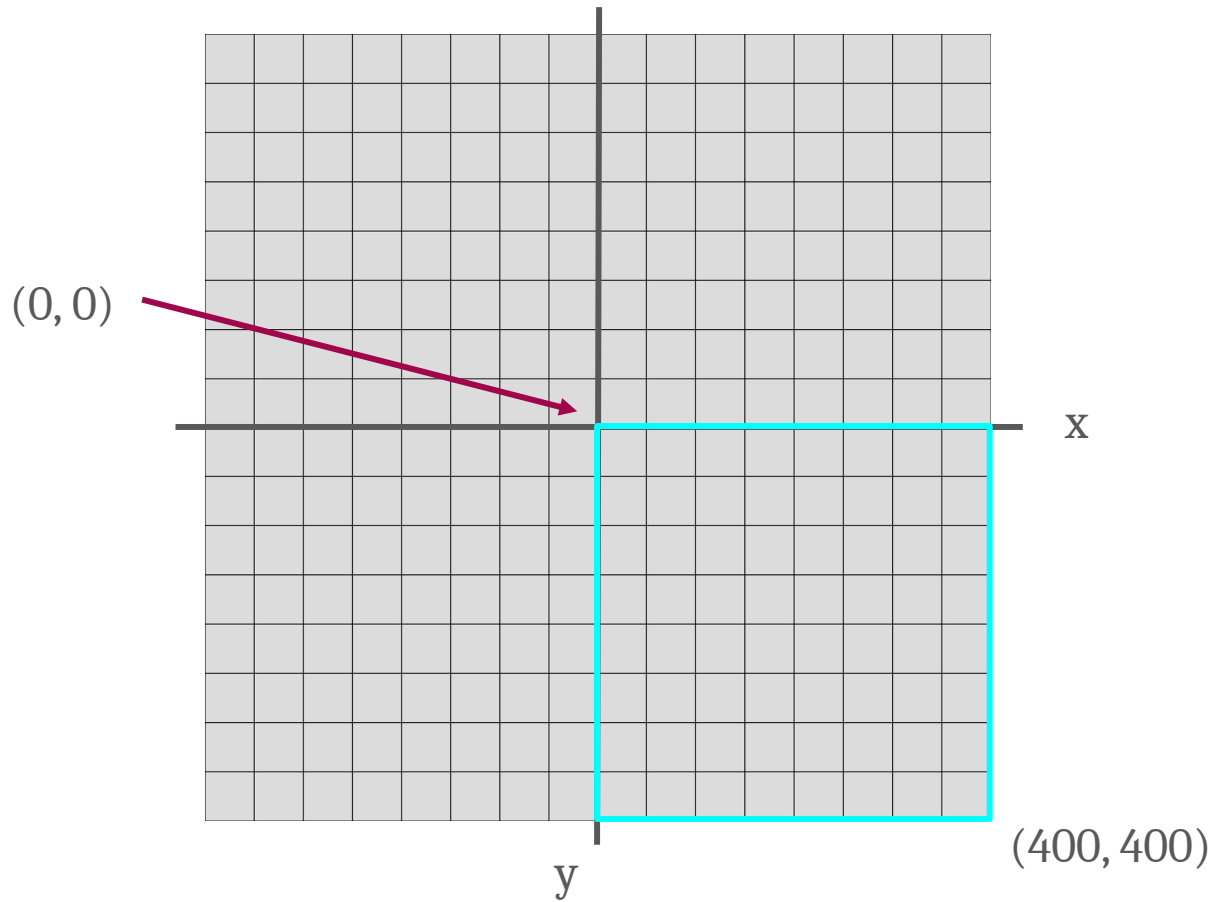
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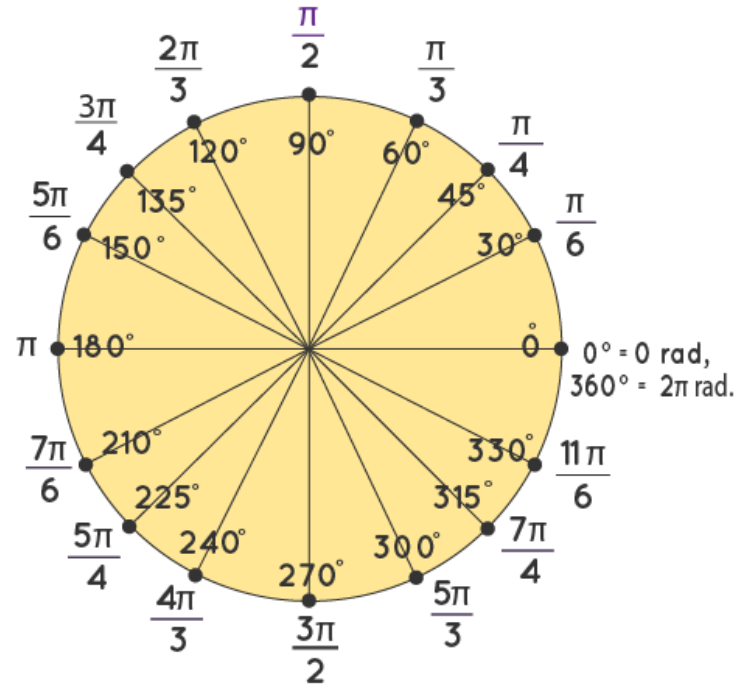
Preview

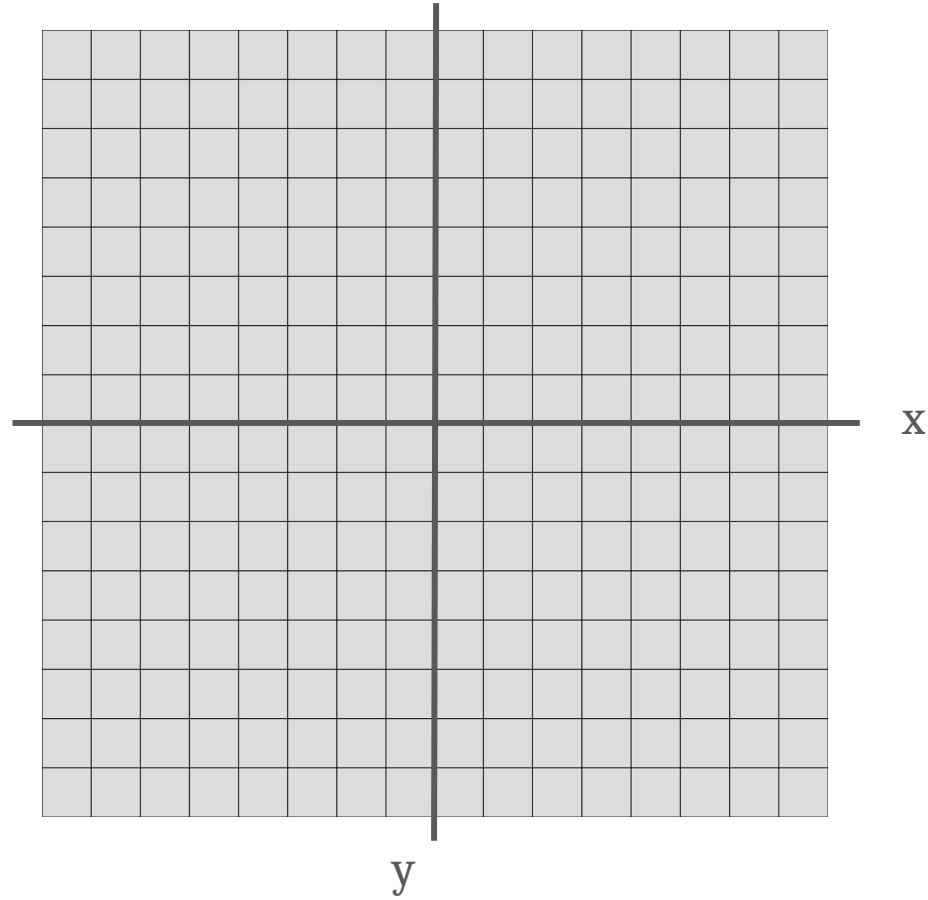


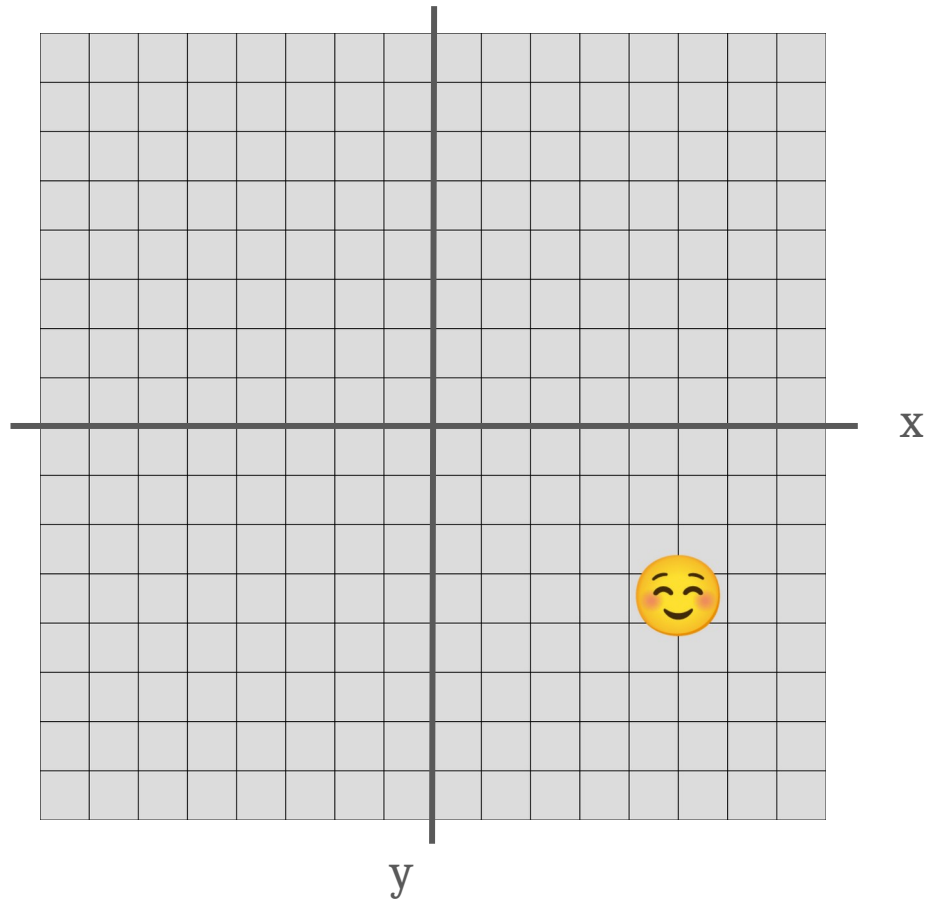


Rotation

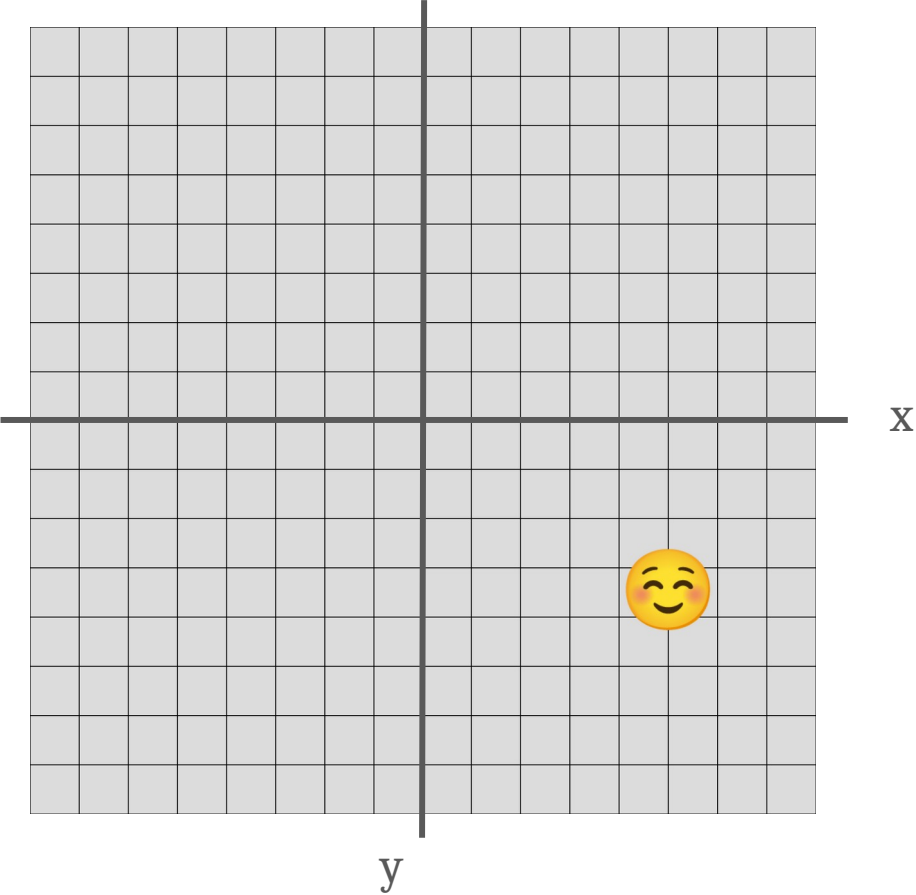
- Rotate about a point in the canvas
- Usually uses radians
 - `angleMode(DEGREES)` to use degrees



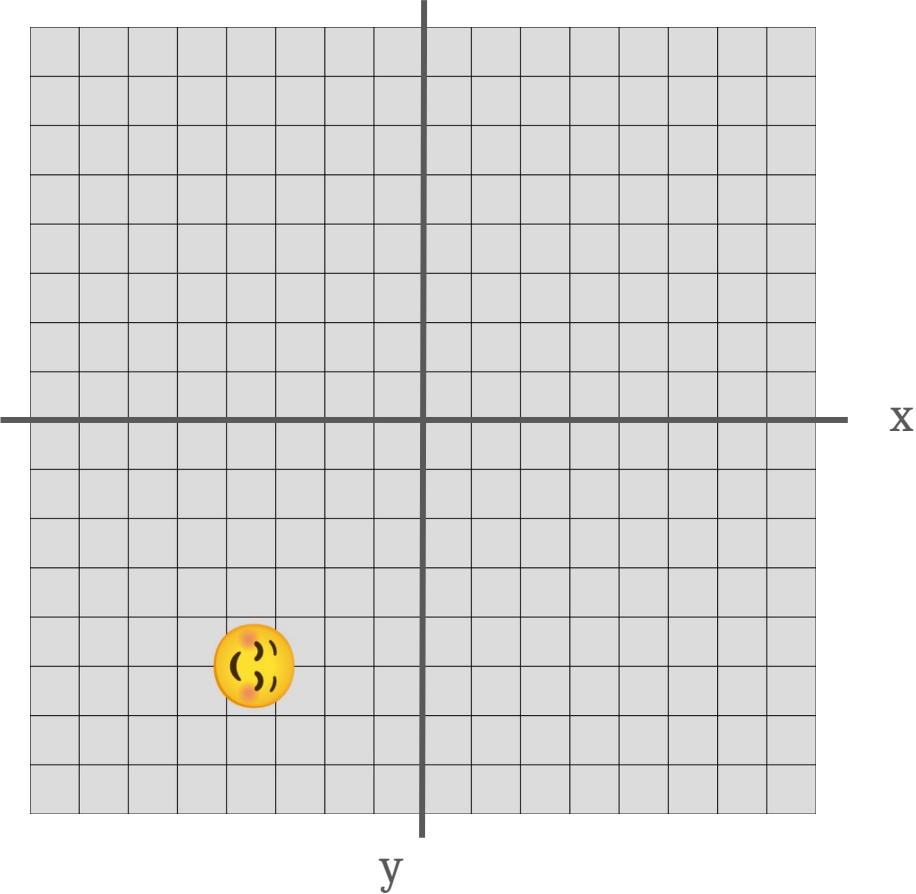




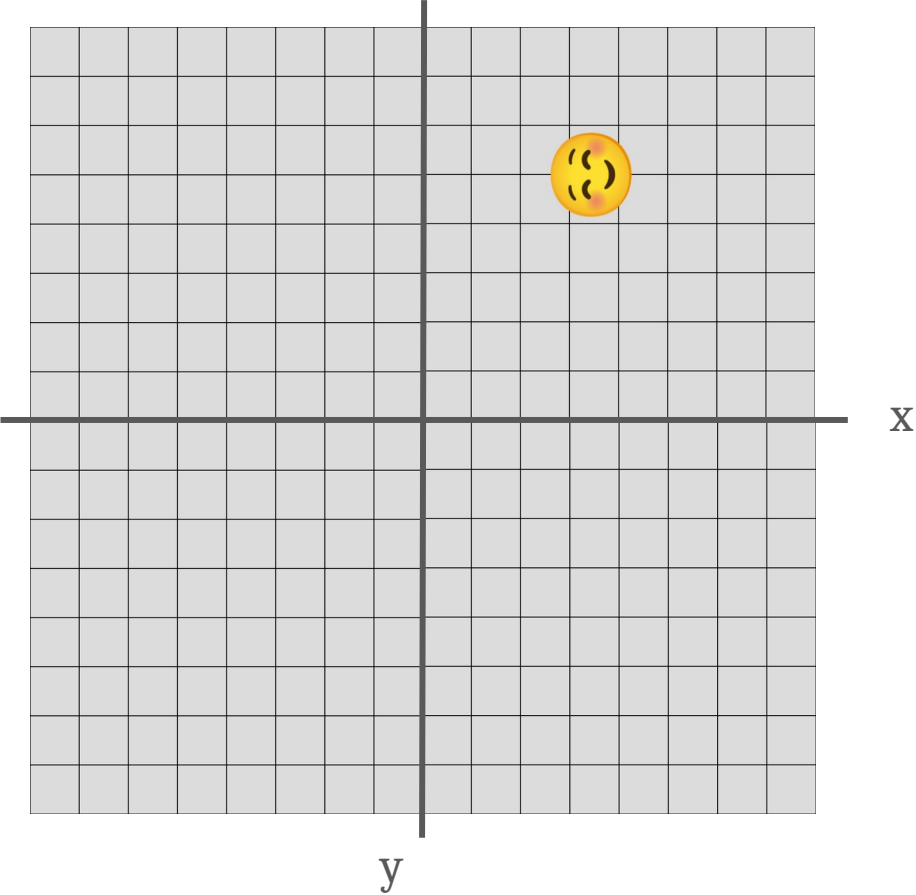
rotate(90)



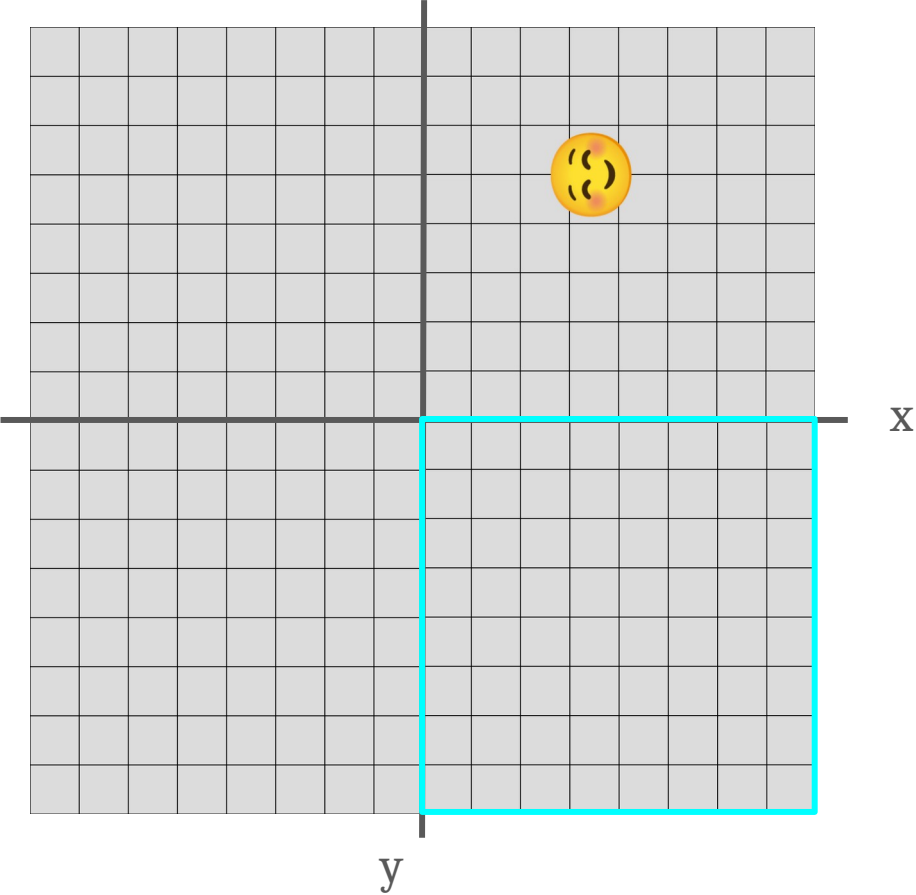
rotate(90)



rotate(270)



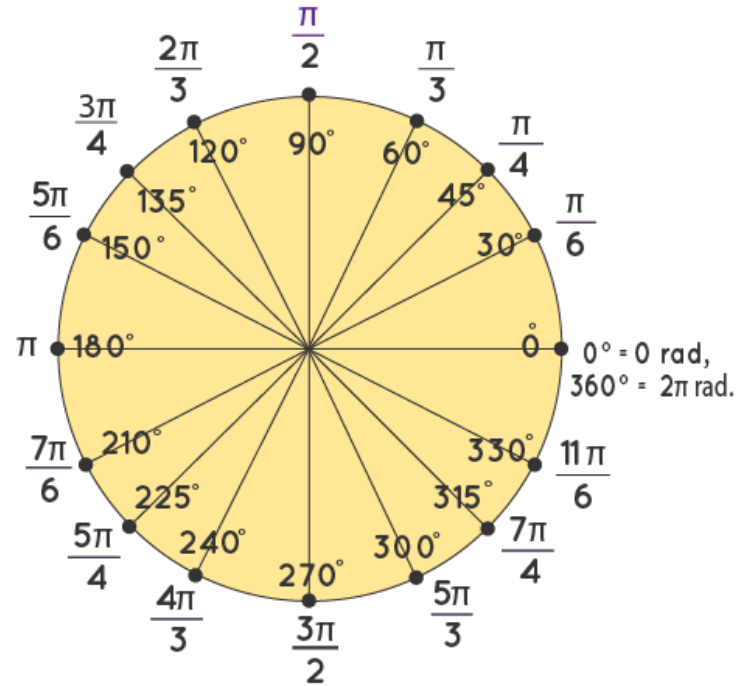
rotate(270)



Rotation

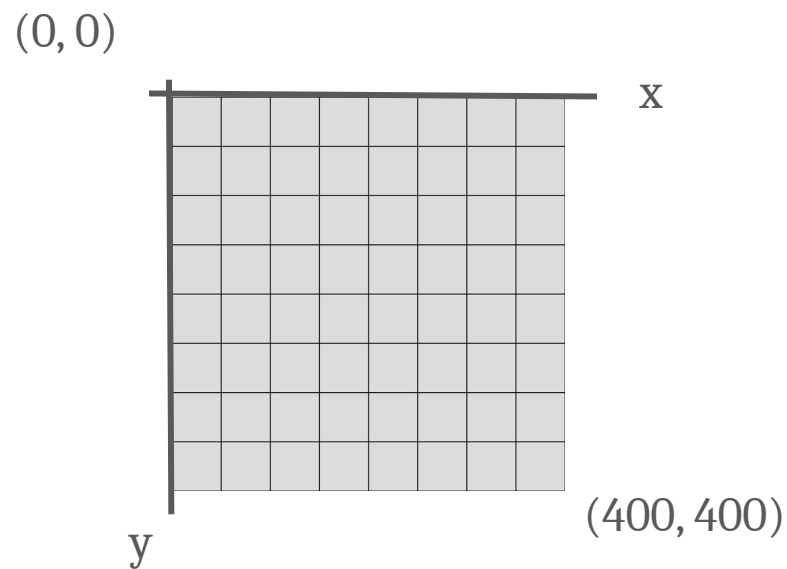
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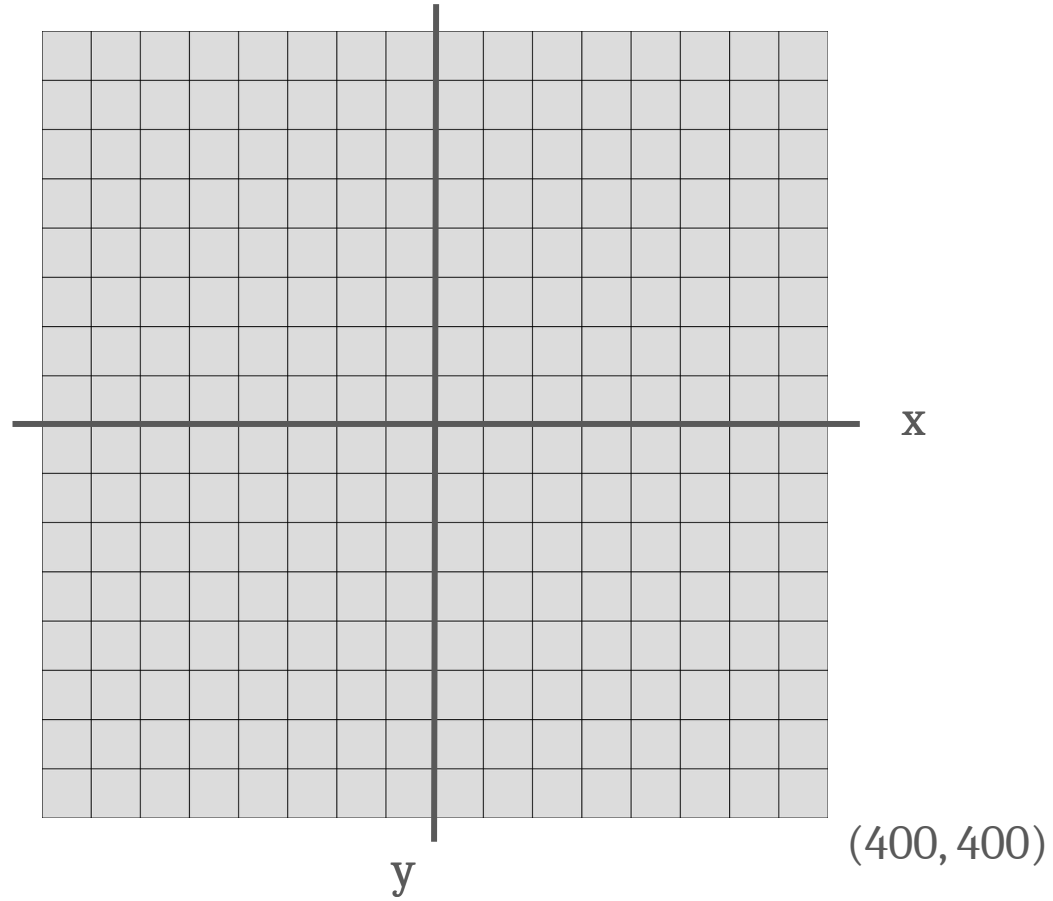
Example



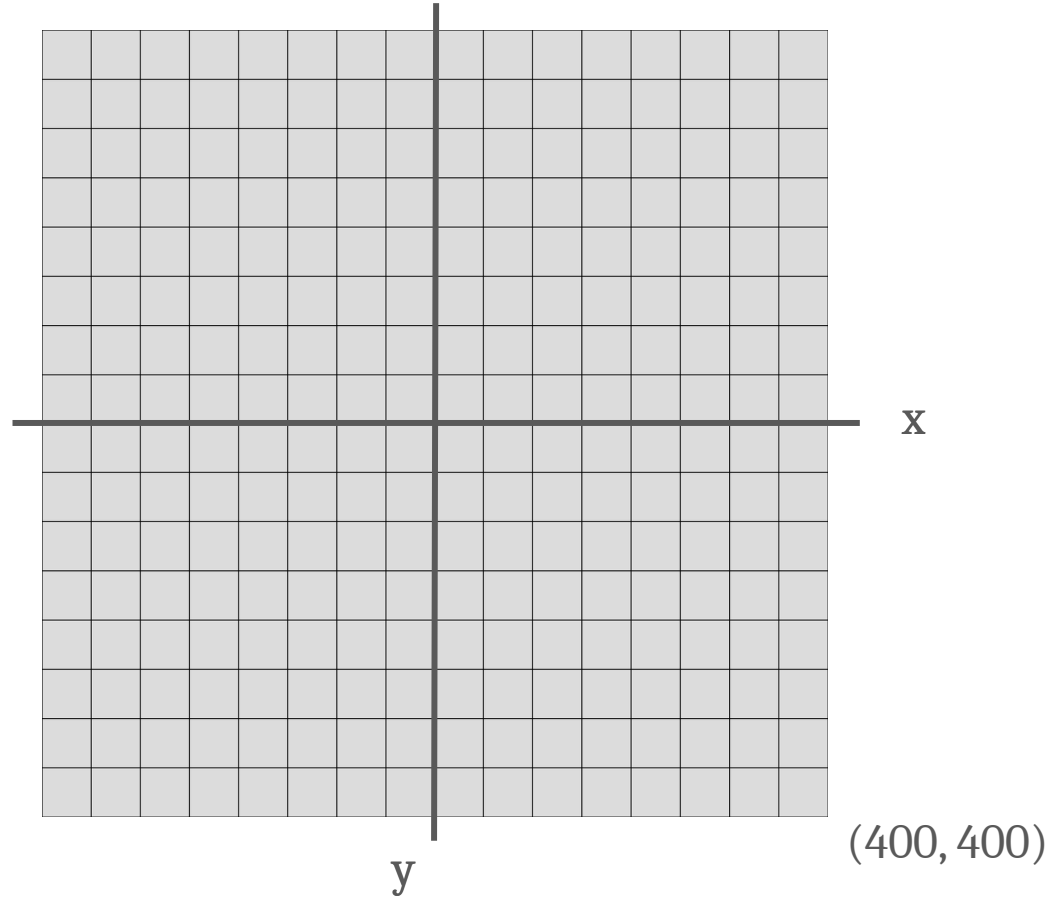
Translation

- Change where $(0, 0)$ is located

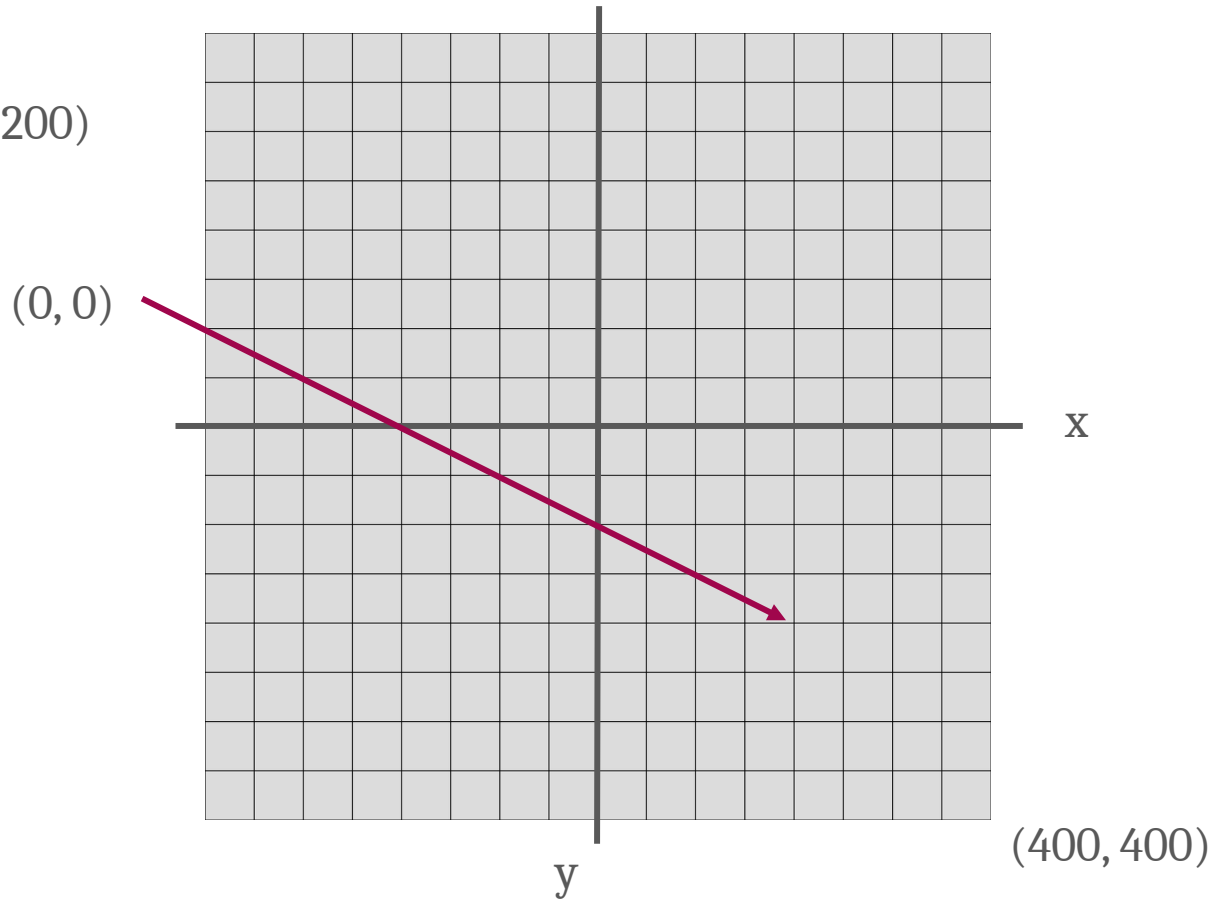




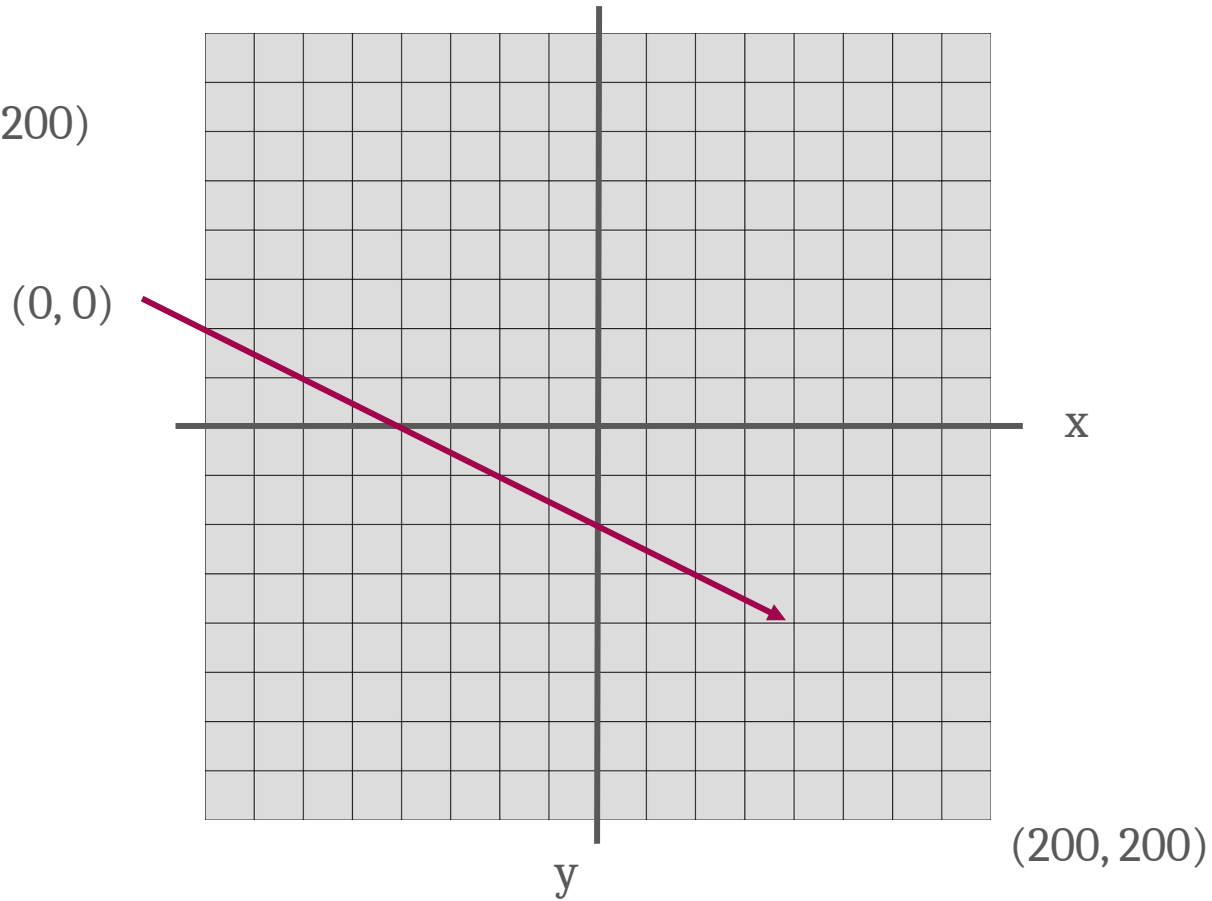
`translate(200, 200)`



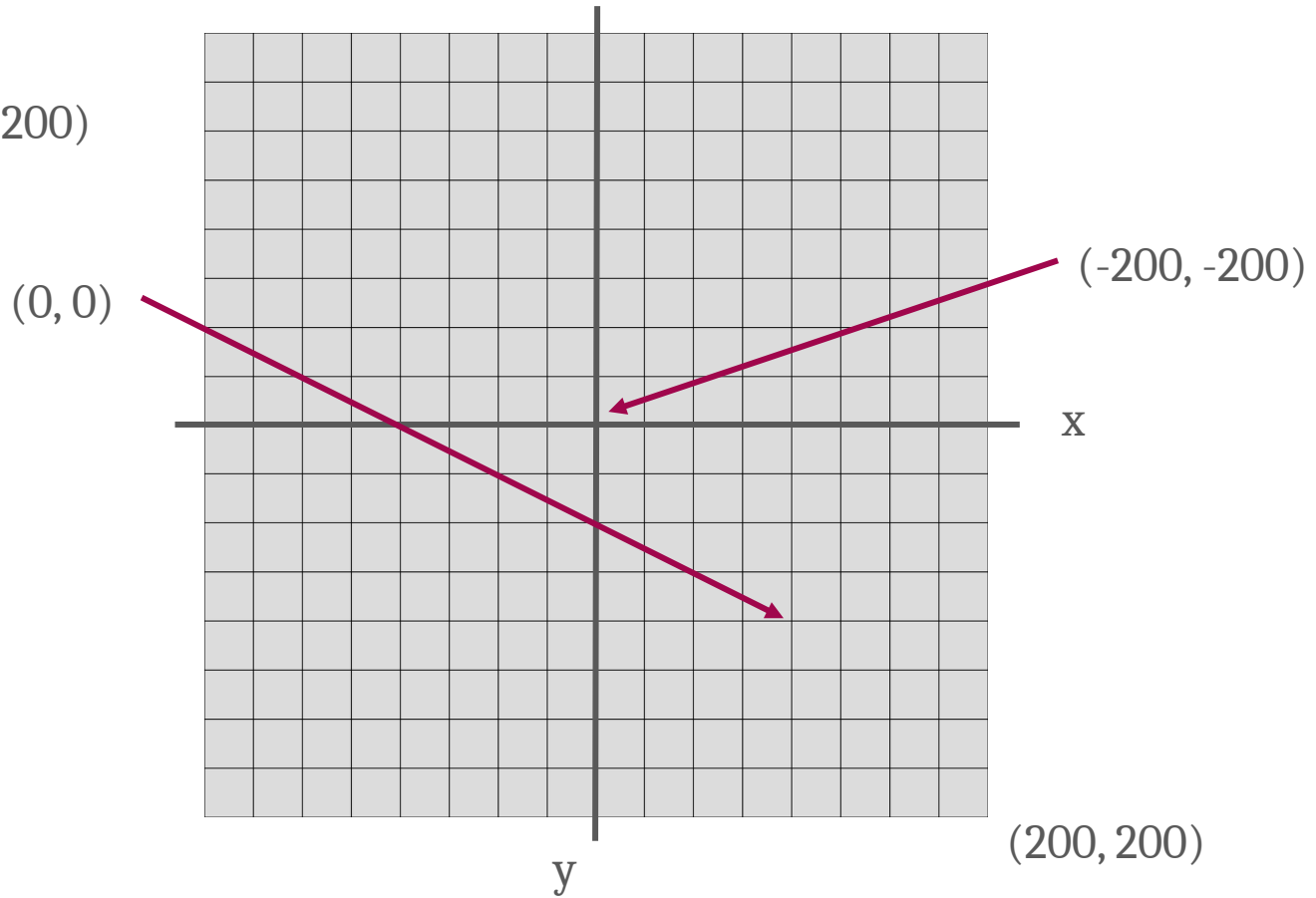
`translate(200, 200)`



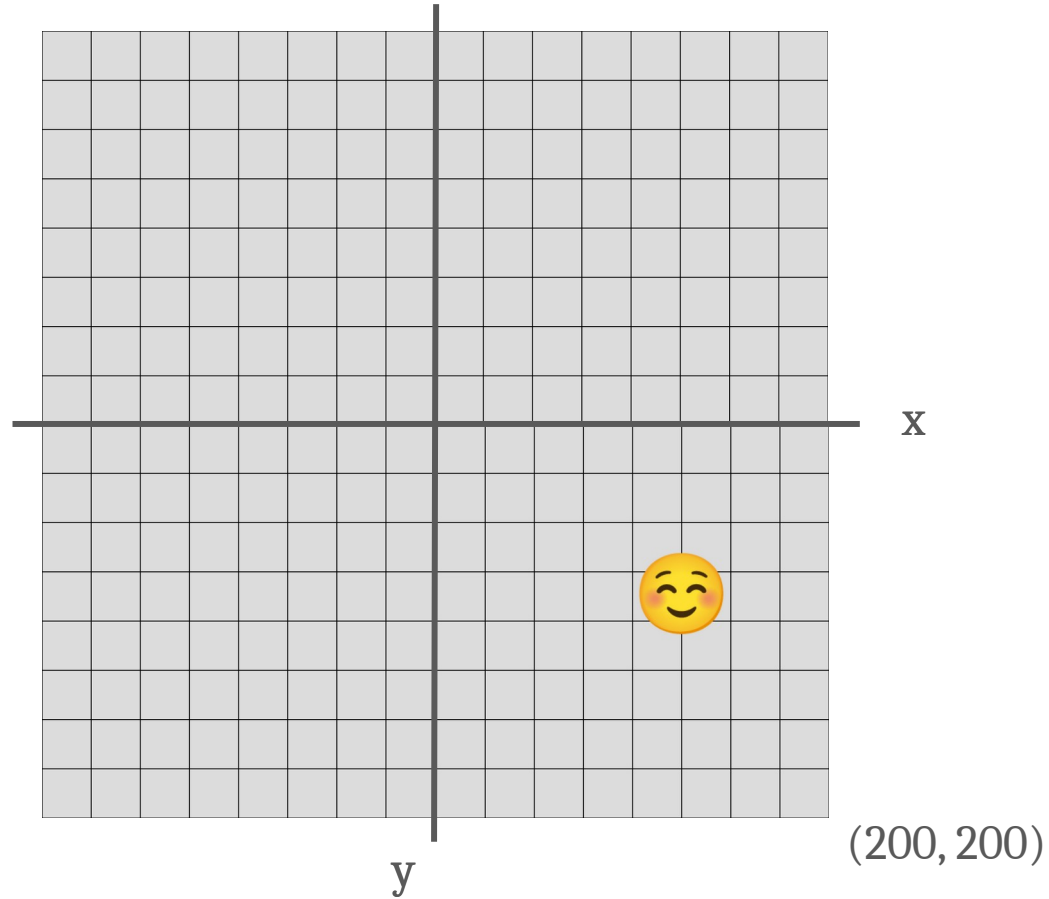
`translate(200, 200)`



`translate(200, 200)`

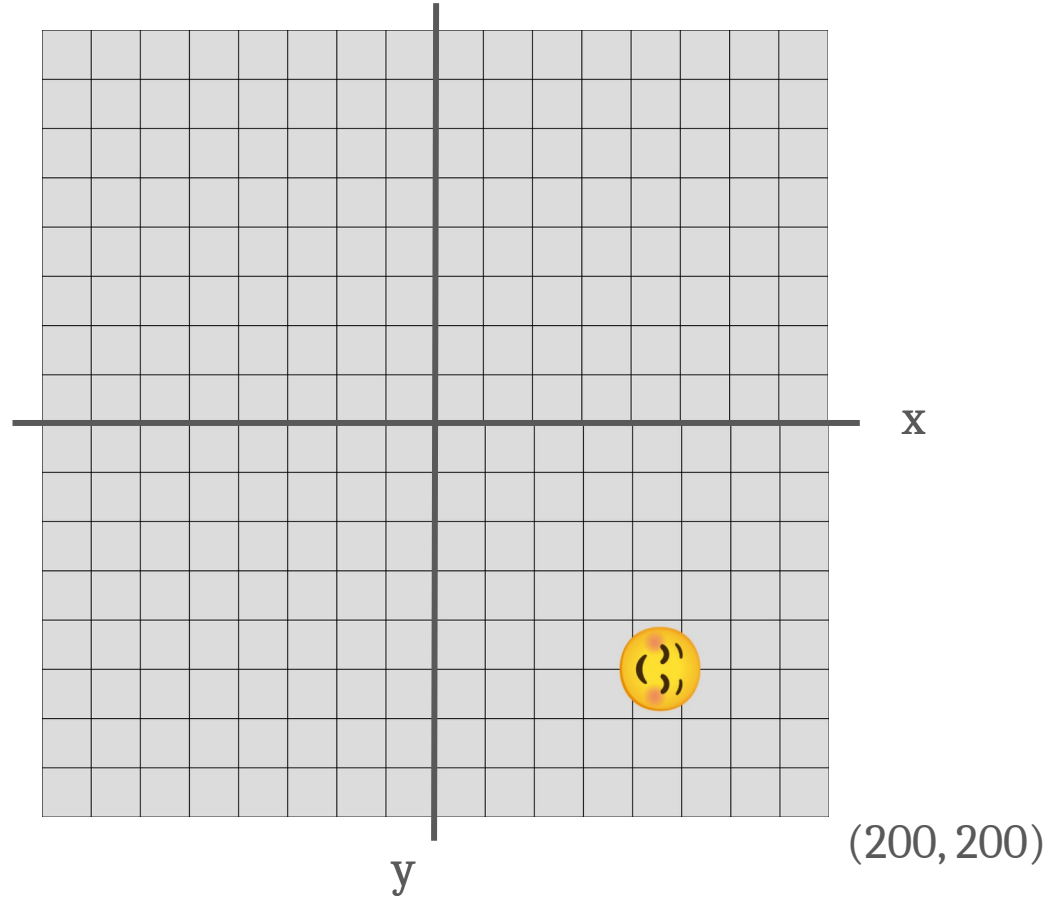


`translate(200, 200)`



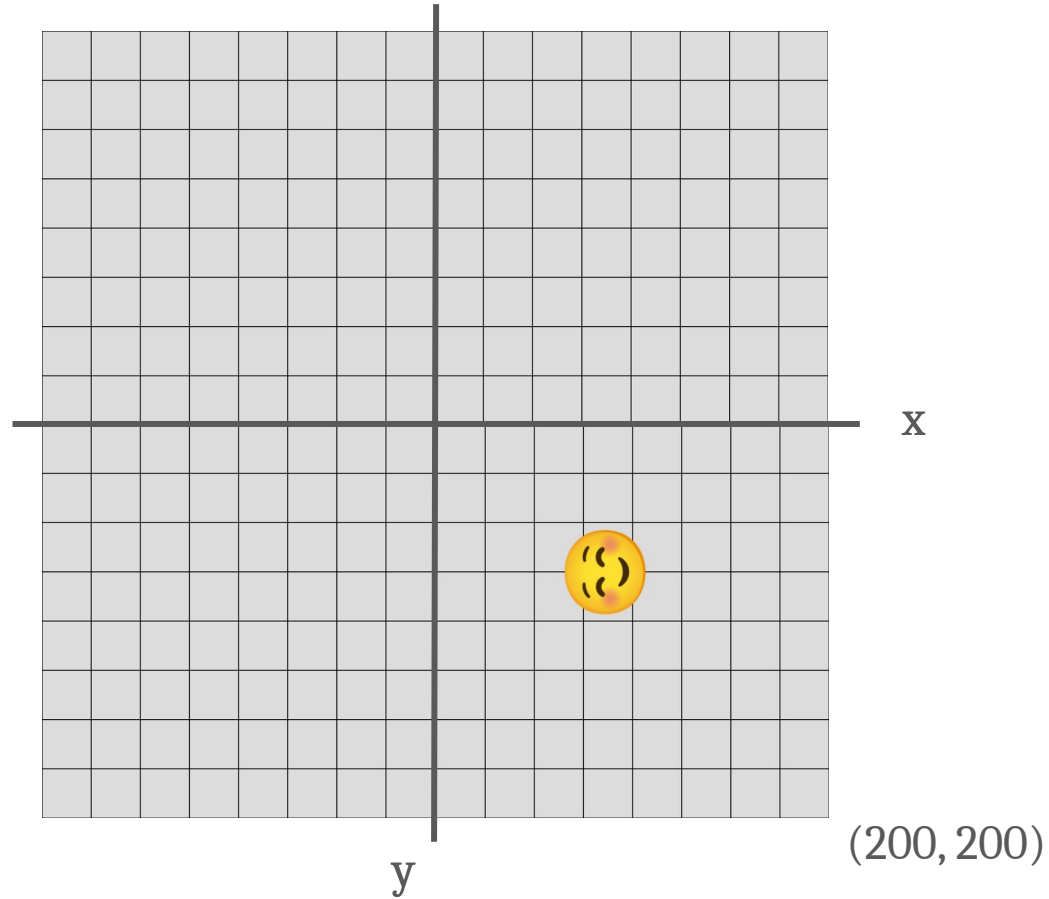
`translate(200, 200)`

`rotate(90)`



`translate(200, 200)`

`rotate(270)`



Translation

- Change where $(0, 0)$ is located

Example

Practice

First practice:

1. Add some emoji at (100, 100)
2. Rotate the canvas 30 degrees
3. Rotate the canvas 45 degrees

Second practice:

4. Translate the canvas to (100, 100)
5. Add some emoji at (0, 0)
6. Rotate the canvas 30 degrees
7. Rotate the canvas 45 degrees
8. Rotate the canvas 180 degrees