

Tengchao Zhou

# Problem Set 2

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## Notes

(1) You will need to consult the p5.js reference in order to solve these problems.

Link to the reference: <https://p5js.org/reference/>

(2) Experimenting with code will help you learn.

A place to experiment with code: <https://editor.p5js.org/>

## frameCount

\* What will the following code do?

```
function setup(){  
  createCanvas(101, 101);  
}  
  
function draw(){  
  ellipse(51, 51, frameCount);  
}
```

---

## frameRate()

\* How will (a) and (b) draw differently?

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(a)

```
function setup(){
  createCanvas(101, 101);
  frameRate(5);
}

function draw(){
  ellipse(51, 51, frameCount);
}
```

(b)

```
function setup(){
  createCanvas(101, 101);
  frameRate(25);
}

function draw(){
  ellipse(51, 51, frameCount);
}
```

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## for

\* What will the following code do?

```
function setup(){
  createCanvas(101, 101);
}

function draw(){
  noFill();
  for(let i=0;i<10;i++){
    ellipse(51, 51, i*10);
  }
}
```

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\* What's the difference between `for(i=0;i<100;i++)` and `for(i=0;i<10;i++)`?

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\* How many times will `ellipse(51,51,i*10)` run?

```
for(let i=0;i<10;i++){  
  ellipse(51, 51, i*10);  
}
```

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\* What will the largest possible value for `d` be within the for-loop?

```
for(let i=0;i<10;i++){  
  let d = i*10;  
  ellipse(51, 51, d);  
}
```

---

## translate()

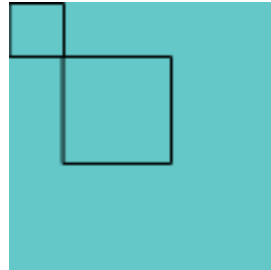
\* Fill in the missing numbers to draw the image on the right.

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```
function setup(){
  createCanvas(101, 101);
}

function draw(){
  background(100,200,200);
  noFill();
  rect(0,0,20,20);

  translate(____, ____);
  rect(0,0,40,40);
}
```



## PI

\* Answer the following questions.

What's 360 degrees in radians? \_\_\_\_\_

What's 180 degrees in radians? \_\_\_\_\_

What's 90 degrees in radians? \_\_\_\_\_

What's 45 degrees in radians? \_\_\_\_\_

What's 60 degrees in radians? \_\_\_\_\_

What's 30 degrees in radians? \_\_\_\_\_

## angleMode()

\* If you want to use degree instead of radian, what code should you write?

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\* If you want to use radian instead of degree, what code should you write?

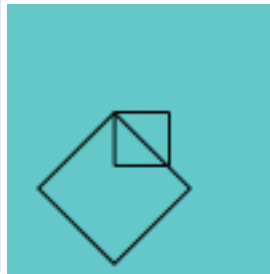
\_\_\_\_\_

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## rotate()

\* Fill in the missing number to draw the image on the right.

```
function setup(){  
  createCanvas(101, 101);  
}  
  
function draw(){  
  background(100,200,200);  
  noFill();  
  translate(40,40);  
  rect(0,0,20,20);  
  
  rotate(PI/____);  
  rect(0,0,40,40);  
}
```



## scale()

\* To draw the image on the right, select the number to fill in the blank.

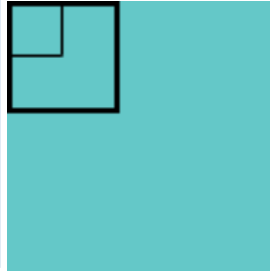
- (a) 2
- (b) 20
- (c) 4

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```
function setup(){
  createCanvas(101, 101);
}

function draw(){
  background(100,200,200);
  noFill();
  rect(0,0,20,20);

  scale(____);
  rect(0,0,20,20);
}
```



## push(), pop()

\* Explain how adding push() and pop() influences the drawing.

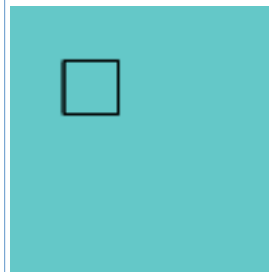
Before adding push() and pop():

```
function setup(){
  createCanvas(101, 101);
}

function draw(){
  background(100,200,200);
  noFill();

  translate(20,20);
  rect(0,0,20,20);

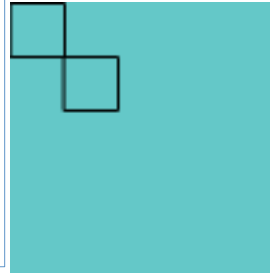
  rect(0,0,20,20);
}
```



After adding push() and pop():

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```
function setup(){  
  createCanvas(101, 101);  
}  
  
function draw(){  
  background(100,200,200);  
  noFill();  
  push();  
  translate(20,20);  
  rect(0,0,20,20);  
  pop();  
  rect(0,0,20,20);  
}
```



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