Fill in the best response ①-⑩ for each question. All coding questions refer to the version of Javascript (ES6) and the p5js library that we have been using in class.

1. How can you implement a conditional statement to set y to 10 if x is 5? If only one answer is correct, select that answer, otherwise select the option that indicates how many are correct.

   ① if x == 5 then y = 10;
   ② if (x == 5) y = 10;
   ③ if (x = 5) y = 10;
   ④ if (x == 5) then y = 10;
   ⑤ if x == 5 {y = 10;}
   ⑥ 2 of the first five are correct
   ⑦ 3 of the first five are correct

2. Assume bar is an array of bots. How could you set the x value of each bot to a random value between 0 and width? If only one answer is correct, select that answer, otherwise select the option that indicates how many answers are correct.

   ① for (let i = 0; i < bar.length; i++) bot[i].x = random(width);
   ② for (let bot of bar) bot.x = random(width);
   ③ for (let i = 0; i < bar.length; i++) bar[i].x = random(width);
   ④ for (let bb of bar) bb.x = random(width);
   ⑤ none of the first four is correct
   ⑥ 2 of the first four are correct
   ⑦ 3 of the first four are correct
   ⑧ all of the first four are correct
3. Given the code:

```javascript
var y = 2;
var z = 3;
function foo(y) { return 2*y; }
function bar(z) { return z - 3; }
var c = foo(1) - bar(y);
```

what is the value of c?

① -2  
② -1  
③ 0  
④ 1  
⑤ 2  
⑥ 3  

4. Given the code:

```javascript
var a = [1, 2];
a[a[1]] = 1;  // a = [1, 2, 1]
var c = a[1] - a.length;
```

what is the value of c?

① -2  
② -1  
③ 0  
④ 1  
⑤ 2  
⑥ 3
5. Consider a canvas of size 400 by 400; the drawing command:
   \texttt{ellipse(390, 20, 10)};
   generates a circle near what corner of the canvas?
   \begin{itemize}
   \item[1] upper left
   \item[2] upper right
   \item[3] lower left
   \item[4] lower right
   \end{itemize}

6. Which pair of shapes overlap with each other? If only one answer is correct, select that answer, otherwise select the option that indicates how many answers are correct.
   \begin{itemize}
   \item[1] \texttt{rect(40, 30, 20, 10); rect(20, 30, 10, 10)}; \texttt{// x spans 40-60, x spans 20-30, no overlap}
   \item[2] \texttt{rect(40, 30, 20, 10); ellipse(20, 30, 20)}; \texttt{// x spans 40-60, x spans 10-30, no overlap}
   \item[3] \texttt{rect(10, 20, 30, 40); rect(30, 40, 20, 10)};
   \item[4] \texttt{ellipse(10, 30, 10); ellipse(30, 20, 10)}; \texttt{// x spans 5-15, x spans 25-35, no overlap}
   \item[6] 2 of the first four pairs overlap
   \item[7] 3 of the first four pairs overlap
   \end{itemize}
7. Consider the following code:

```javascript
function foo(x) {
  var a = 0;
  var c = 0;
  for (let i = 0; i < x.length; i++) {
    a++;
    c += x[i];
  }
  return a;
}
```

what value would be printed by `console.log(foo([-1, 0, 1]))`?

① -2 ② -1 ③ 0 ④ 1 ⑤ 2 ⑥ 3

8. If you modified the last line of the previous code to return `c` instead of `a`, what value would be printed by `console.log(foo([-1, 0, 1]))`?

① -2 ② -1 ③ 0 ④ 1 ⑤ 2 ⑥ 3
9. What is the value of \(\text{constrain}(1, 2, 3) - \text{constrain}(3, 1, 2)\)?
\[= 2 - 2\]

\[\begin{array}{ll}
\text{①} & -2 \\
\text{②} & -1 \\
\text{③} & 0 \\
\text{④} & 1 \\
\text{⑤} & 2 \\
\text{⑥} & 3 \\
\end{array}\]

10. Consider the following p5js code. Pay attention to variable scope!

```javascript
var v = 1; // v is global
var w = -1; // w is global

function setup() {
    v++;   // v is now 2 (changes global v)
    reset(); // v is still 2 (reset didn’t change global v), w is 0 (reset DID change global w)
    let x = v + w;  // x = 2 + 0
    console.log(x);
}

function reset() {
    var v = 0;  // this v is local (because of var), this line doesn’t change global v
    w = 0;     // this changes global w
}
```

What value is logged to the console?

\[\begin{array}{ll}
\text{①} & -2 \\
\text{②} & -1 \\
\text{③} & 0 \\
\text{④} & 1 \\
\text{⑤} & 2 \\
\text{⑥} & 3 \\
\end{array}\]