Javascript Scope Exercises

1. Determine what this Javascript code will print out (without running it):

```
 x = 1;  var
a = 5;   var
b = 10;
 var c = function(a, b, c) {
                                var x = 10;
document.write(x);
document.write(a);
                                var f = function(a, b, c) {
                                                        b = a;
                                                        document.write(b);
                                                        b = c;
                                                        var x = 5;
                                                    }
                                f(a,b,c);
                                document.write(b);
                        }
c(8,9,10);
document.write(b);
document.write(x);
 }
```

Answer: 10 8 8 9 10 1

2. What is the difference between a method and function?

   Answer: Method is belongs to Object. Function is more individual and run it directly

3. What does 'this' refer to when used in a Java method?

   Answer: this refers to current object

4. What does 'this' refer to when used in a JavaScript method?

   Answer: In a javascript method this refers to owner object.

5. What does 'this' refer to when used in a JavaScript constructor function?

   Answer: In javascript constructor function this refers to object constructor

6. Assume object *x* is the prototype for object *y* in Javascript. Object *x* has a method *f*( ) containing keyword 'this'. When *f* is called by *x.f*( ), what does 'this' refer to?

   Answer: this refers to x

7. What is a free variable in JavaScript?

   Answer: Free variables are the variables that are neither locally declared nor passed as parameter.

8. Create an object that has properties with name = "fred" and major="music" and a property that is a function that takes 2 numbers and returns the smallest of the two, or the square of the two if they are equal.

   Answer:

   { 'name': "fred", 'major': "music", 'fn': (a, b) => { if(a === b) { return a * b; } return Math.min(a, b); } }

9. Write Javascript code for creating three *Employee* objects using the "new" keyword and a constructor function. *Employee* objects have the following fields: name, salary, position.

   Answer:

```
class Employee { constructor(name, salary, position) {
      this.name = name;
      this.salary = salary;
      this.position = position; }
}
const emp1 = new Employee("Tony1", 100, "Position1");
const emp2 = new Employee("Tony2", 200, " Position2");
const emp3 = new Employee("Tony3", 300, " Position3");
```

10. Write a Javascript function that takes any number of input arguments and returns the product of the arguments.

    Answer:

    function fn(...params) { return { ...params } };

11. Write an arrow function that returns the maximum of its three input arguments.

    Answer:

    const findMax = (x, y, z) => { return Math.max(x, y, z); };