

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);
}
```

10 8 8 9 10 1

2. What is the difference between a method and function?
A method is a function that belongs to an object.
3. What does 'this' refer to when used in a Java method?
The object that contains the method.
4. What does 'this' refer to when used in a JavaScript method?
The object that contains the method.
5. What does 'this' refer to when used in a JavaScript constructor function?
The newly created object that called the function.
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?
The object x.
7. What is a free variable in JavaScript?
A variable used in a function that is not declared, either explicitly or implicitly.

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.

```
function
var obj = {
  name: "fred";
  major: "music";
  smallerOrSquare: function (n1, n2) {
    if (n1 === n2) {
      return n1*n1;
    } else {
      if (n1 < n2) {
        return n1;
      } else {
        return n2;
      }
    }
  }
}
```

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.

```
function Employee(name, salary, position) {
  this.name = name;
  this.salary = salary;
  this.position = position;
}

var emp1 = new Employee("Thor", 1000, "Avenger");
var emp2 = new Employee("Ironman", 2000, "Avenger");
var emp3 = new Employee("Batman", 3000, "DC Hero");
```

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

```
function findProduct() {
  var i = 0;
  var product = 0;
  if(arguments.length > 0) {
    product = 1;
  }
  for(i = 0; i < arguments.length; i++) {
    product = product * arguments[i];
  }
  return product;
}
```

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

```
var max = (n1, n2, n3) => {  
  function max2(n1, n2) {  
    if (n1 > n2) {  
      return n1;  
    } else {  
      return n2;  
    }  
  }  
  
  return max2(max2(n1, n2), n3);  
}
```