

# Intro to Programming Final

March 14th 2013

*There are a total of 115 possible points on the test. Your grade will be out of 100 however, so there is possibility of earning up to 15 bonus points.*

## Problem 1 (5 points)

Write an object called `me`. The `me` object should have three properties:

- `firstName` - Your first name
- `lastName` - Your last name
- `birthdate` - a `Date` object that holds your fictitious birthdate.

## Problem 2 (2 points)

Display the `firstName` and `lastName` properties of the `me` object with a space in between.

## Problem 3 (5 points)

For each data value below, write the type of the value (i.e. what you'd get if you used the `typeof` operator) and whether the value is truthy or falsey.

`2.3`

`true`

`"false"`

`0`

`{title: "Introduction to Programming"}`

## Problem 4 (2 points)

Write one way of writing an empty array and one way of writing an empty object.

### Problem 5 (8 points)

Finish writing this function that returns the average of an array of numbers.

*Hint: You'll need to use a loop and the array's "length" property. Do your work on the back of this page.*

```
var calculateAverage = function(numbers) {  
    var average;  
    // TODO: Calculate the average.  
    return average;  
}
```

### Problem 6 (2 points)

Write the JavaScript that would call your `calculateAverage` function twice, once with each of the arrays below, and log each of the results.

```
var winter2013grades = [80, 92, 98, 88];  
var fall2012grades = [68, 99, 74];
```

### Problem 7 (10 points)

Given this html write the code to add the values of `#num1` and `#num2` and place the result in `#result`. The solution should place 2.8 in `#result`. You may use jQuery if you'd like. You don't need to worry about any event listeners here.

```
<input type="text" id="num1" value="1.5" />  
<input type="text" id="num2" value="1.3" />  
<h1>Result:</h1>  
<p id="result"></p>
```

### Problem 8 (2 points)

What does the following Javascript code print?

```
function doSomething() {
    var name = "Intro to Programming";
}
doSomething();
show( name );
```

### Problem 9 (2 points)

What does the following Javascript code print?

```
var who = 'Creative Circus students';
var what = 'love robots!';
function evil_stuff() {
    var who = 'Zero Wing';
    what = 'All your base are belong to us!!!';
}
evil_stuff();
show( who );
show( what );
```

### Problem 10 (15 points)

Write a function called `timeAgo`. It should accept a single `Date` object as a parameter and return a string according to the following rules:

- If the date was less than 60 seconds ago, return "just now"
- If the date was less than 60 minutes ago, return "X minutes ago", filling in X with the amount of minutes ago the date was.
- If the date was less than 24 hours ago, return "X hours ago", filling in X with the amount of hours ago the date was.
- If the date was more than 24 hours ago, return "X days ago", filling in X with the amount of days ago the date was.
- If you can't figure this out, just do as much of it as you can. I'll give partial credit.

*(Do your work on the back of this page.)*

### Problem 11 (5 Points)

Print out the name property of the second employee's boss.

```
var employees = [  
  {  
    name: 'John Smithers',  
    position: 'Pencil Pusher',  
    boss: { name: 'Joe Lafferty', position: 'Project Manager' }  
  },  
  {  
    name: 'Carl Fox',  
    position: 'Salesperson',  
    boss: { name: 'Laura Story', position: 'Sales Manager' }  
  }  
];
```

### Problem 12 (6 Points)

Using the employees array from the previous question:

Joe Lafferty has just been fired for stealing erasers.

- Create a new object with the name "Matt Jones" and the position "Department Manager".
- Then replace the boss property "John Smithers" with the new object you just made.

### Problem 13 (10 points)

Write a function called `hasSameBirthdate`. It should:

- Accept two `Date` objects as parameters.
- Return `true` if both dates share the same month and date and `false` otherwise. The year doesn't matter.

*(Do your work on the back of this page.)*

**Problem 14 (2 Points)**

What does a constructor function do?

**Problem 15 (2 Points)**

What is the purpose of the prototype property of a constructor function?

**Problem 16 (4 points)**

What is the DRY principle? Why is it important? What are some ways you can DRY up your code?

**Problem 17 (2 points)**

What is an event listener and what does it do?

**Problem 18 (10 points)**

Using the below HTML, write an event listener that pops up an alert with the text entered in #message whenever the form is submitted. Make sure that you call the method on the event object that keeps the browser from loading the new page.

```
<form method="get" action="/" id="myForm">
  <input type="text" id="message" value="" />
  <input type="submit" value="Add"
id="myFormSubmit" />
</form>
```

*(Use jQuery if you wish. Do your work on the back of this page.)*

### Problem 19 (5 points)

Write a loop that asks the user for a password (using JavaScript's `prompt()` function) and stores the result in the `password` variable. It should keep looping until the value of `password` is equal to the value of `secret`. You need to actually compare `secret` to `password`.

*The `prompt()` function is built-in to JavaScript. It takes in 1 argument (the string to display to the user) and returns a string that is the user's response.*

```
var secret = "abracadabra";  
var password = "";
```

### Problem 20 (2 Points)

Write a comment (either single line style, or multi-line style) that says what helped you most in understanding programming during this class.

### Problem 21 (10 points)

Write a function called `coinFlip`. The `coinFlip` function:

- accepts two parameters (which can be anything)
- calls `Math.random()` (which returns a number between 0 and 1) and stores the result in a variable
- if the result of `Math.random()` is less than 0.5, it returns the first parameter, otherwise it returns the second parameter

*(Do your work on the back of this page.)*

### Problem 22 (4 points)

Call the `coinFlip` function, using the two objects below as its two arguments. Store the result in a variable. Then log the name of the person who was returned from `coinFlip` to the console.

```
var person1 = { name: "Thomas Johnson" };  
var person2 = { name: "Stephanie Hurt" };
```