

Intro to Programming Midterm

February 7th 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.

#1 (4 points)

Create an object called "me" that holds your first and last name (as separate properties). Then log your first and last name to the console on one line, separated by a space. If you don't know how to do this, just write your name below.

#2 (2 points)

List the two things that a `return` statement does.

#3 (6 points)

Write a `while` loop that does the exact same thing as this `for` loop:

```
for (var i=0; i < 20; i++) {  
    console.log(i);  
}
```

#4 (10 points)

Write a function called `countdown`. The `countdown` function should accept a number as a parameter and log every number from that number down to 0 to the console. You can use a `for` loop if you wish, but you have more practice doing `while` loops, so you may want to use that instead.

#5 (6 points)

List three invalid variable identifiers, along with why they are invalid. They should all be invalid for different reasons.

#6 (10 points)

Draw the DOM tree that corresponds to the following HTML on the back of this page. Use `<tagName>` to represent an element, and just write the text for a text node.

```
<html>
  <head>
    <title>Midterm</title>
  </head>
  <body>
    <h1>Hello, <span>world</span>!</h1>
  </body>
</html>
```

#7 (10 points)

Write JavaScript code that replaces the contents of the span element (ONLY!) with "Goodbye".

```
<p id="greeting"><span>Hello</span> world.</p>
```

#8 (10 points)

Write a function called `tipCalculator` that accepts two parameters: the amount of a restaurant bill, and a percentage to tip. It should calculate the amount of the tip and log it in the console.

#9 (3 points)

Call your `tipCalculator` function three times, with these arguments:

- \$20.10 bill. 18% tip
- \$80.00 bill. 20% tip
- \$4.95 bill. 10% tip

#10 (12 points)

Math.random() returns a random number between 0 and 1. That means that we can choose between two random options (with equal probability) by doing the first option if the result of *Math.random()* is less than 0.5 and doing the second option otherwise.

Create a function called `coinFlip`. The `coinFlip` function will not take in any parameters, or return any values. It will randomly log either "heads" or "tails" to the console with equal probability.

#11 (10 points)

Prompt the user (using the `prompt()` function) to enter a password. Keep prompting them until they enter a value that equals the value of the password variable. Then log "welcome!" to the console.

```
var password = 'abracadabra';
```

#12 (10 points)

Write a function called `giveRaise` that takes in a single parameter: an object with a "salary" property. It should increase the object's salary property by 10%.

Now call the `giveRaise` function with `aWorker` as an argument.

```
var aWorker = {  
  name: 'Johnny',  
  position: 'Software Engineer',  
  salary: 68000  
};
```

#13 (8 points)

```
1: var link = document.getElementById('aLink');  
2:  
3: var handler = function(event) {  
4:   alert( link.href );  
5:   event.preventDefault();  
6: };  
7:  
8: link.addEventListener("click", handler);
```

Explain what the following lines do in the above JavaScript:

- **Line 1:**
- **Line 4:**
- **Line 5:**
- **Line 8:**

#14 (3 points)

Explain the DRY principle, including at least one way to DRY up your code.

#15 (1 point)

Write a JavaScript comment (either single line style, or multi-line style) that either tells me something that you'd like to learn how to do with JavaScript, or whatever else you want to tell me.

Extra Credit Trick Questions:

What does each statement log? 1 point each

```
console.log( typeof NaN );  
  
console.log( "100" + 10 );  
  
console.log( typeof "false" );  
  
console.log( !"false" );  
  
console.log( 0 == "0" );  
  
console.log( parseFloat("abcd") === NaN );  
  
console.log( isNaN(parseFloat("abcd")) );  
  
console.log( 2e3 );  
  
var x; console.log( x );  
  
console.log( - );
```