**Week 4 Lesson 1 Practice Problems**

1. Debug Bugs.zip. Demonstrate to Steve in person or virtually that you can
   1. Open the Firefox debugger
   2. Set a breakpoint
   3. Step through the code
2. Indicate the value of result for every row in the table. Remember, variables of type string should be wrapped in double quotes.

| **Variables** | **Operation** | **The value of result is** |
| --- | --- | --- |
| var x = 10;  var y = 20;  var result = 10; | result = x + y; | 30 |
| var x = 10;  var y = 20;  var result = 10; | result = x – y; | -10 |
| var x = 10;  var y = 20;  var result = 10; | result = x \* y; | 200 |
| var x = 10;  var y = 20;  var result = 10; | result = x / y; | 0.5 |
| var x = 10;  var y = 20;  var result = 10; | result = x % y; | 10 |
| var x = 10;  var y = 20;  var result = 10; | result = y % x; | 0 |
| var x = 1;  var result = 0; | result = x++; | 2 |
| var x = 1;  var result = 0; | result = x--; | 0 |
| var x = 10;  var y = 20;  var result = 10; | result = y; | 20 |
| var x = 10;  var y = 20;  var result = 10; | result += y; | 30 |
| var x = 10;  var y = 20;  var result = 10; | result -= y; | -10 |
| var x = 10;  var y = 20;  var result = 10; | result \*= y; | 200 |
| var x = 10;  var y = 20;  var result = 10; | result /= y; | 0.5 |
| var x = 10;  var y = 20;  var result = 10; | result %= y; | 10 |
| var firstName = “John ”;  var lastName = “Smith”;  var result = “Mr. “ | result = firstName + lastName; | “John Smith” |
| var firstName = “John ”;  var lastName = “Smith”;  var result = “Mr. “ | result += firstName + lastName; | “Mr. John Smith” |
| var x = 10;  var y = 10;  var result = 0; | result = x === y; | True |
| var x = 10;  var y = 5;  var result = 0; | result = x === y; | False |
| var x = 10;  var y = “10”;  var result = 0; | result = x === y; | False |
| var x = 10;  var y = “5”;  var result = 0; | result = x === y; | False |
| var x = 10;  var y = 10;  var result = 0; | result = x !== y; | False |
| var x = 10;  var y = 5;  var result = 0; | result = x !== y; | True |
| var x = 10;  var y = “10”;  var result = 0; | result = x !== y; | True |
| var x = 10;  var y = “5”;  var result = 0; | result = x !== y; | True |
| var x = 10;  var y = 10;  var result = 0; | result = x < y; | False |
| var x = 10;  var y = 10;  var result = 0; | result = x <= y; | True |
| var x = 10;  var y = 10;  var result = 0; | result = x > y; | False |
| var x = 10;  var y = 15;  var result = 0; | result = x >= y; | False |
| var x = 10;  var y = 10;  var result = 0; | result = x <= 10 && y < 10; | False |
| var x = 10;  var y = 10;  var result = 0; | result = x <= 10 || y < 10; | True |
| var result = 0; | result = !true; | False |
| var x = 10;  var y = 15;  var result = 0; | result = !(x <= 10 || y < 10); | False |
| var result = 3.14159; | result = typeof result; | “number” |
| var result = “3.14159”; | result = typeof result; | “string” |
| var result = true; | result = typeof result; | “boolean” |
| var result = NaN; | result = typeof result; | “number” |
| var result = 10; | result = typeof typeof result; | “string” |
| var result = 0; | result = typeof x; | “undefined” |
| var result = 3; | result = typeof Number(result); | “number” |
| var result = “3”; | result = typeof Number(result); | “number” |
| var result = 3; | result = typeof result.toString(); | “string” |

1. A program is required to calculate the time it takes for a bullet to strike a target.  Assume air resistance and gravitational acceleration is negligible.  Prompt the user for the muzzle velocity and distance to the target.  Use the equation velocity = distance / time.  Be sure to include
   1. The problem statement
   2. Nouns and verbs
   3. Inputs, processing, and outputs
   4. Psuedocode
   5. A flowchart (Dia, Visio, LucidChart, Word, etc.)
   6. A test plan with 3+ tests
   7. JavaScript code