Computer Science Homework

Due Friday, October 4

1. What are the five primitive (or simple) data types we learn about in our text?

2. What is the only primitive data type that requires quotes around the data?

3. Convert binary 1010 to decimal. *(Show your work. Remember, anything to the zero power is 1.)*

4. What is binary 1010 in hexadecimal?

5. Write the truth table for logical AND and logical OR. *(You can use falses and trues or 0s and 1s)*

6. You're asked to write the JavaScript logical statement for the following scenario:
   A gamer can get a free round of play at the end of his game by either scoring 4000 or more points or destroying 5 or more enemy ships.

   You write the following code and find the following scenario gives the wrong result. What is wrong?

   ```
   var points = 4000;
   var enemyShipsDestroyed = 3;
   var freePlay = points > 4000 || enemyShipsDestroyed > 5;
   console.log("You win a free game: " + freePlay);
   ```

7. In a highly rated video game, you can win a round by: eliminating all the opponents or securing the objective. One of these must occur before time runs out. *(For those familiar with the video game, we are going to assume you still have a man left alive on your team, and the game doesn't end in a draw.)*

```
var opponents = 5;
var objectiveSecured = false;
var isTimeLeft = true;
var win = (opponents === 0 || objectiveSecured === true) && isTimeLeft === true;
console.log("You win: " + win);
```

a. What is logged to the console from the above code?

b. Can you think of a value you can assign into the opponents variable that would change the value of the win variable?

c. If the isTimeLeft variable is assigned to false, what will the win variable always equal?

d. Does the following code work just as good as the above code? If so, why?

```
var opponents = 5;
var objectiveSecured = false;
var isTimeLeft = true;
var win = (opponents === 0 || objectiveSecured) && isTimeLeft;
console.log("You win: " + win);
```


e. Did you notice how descriptive my variable names were?   Did the descriptive names help you understand the code despite the lack of comments?

f. The value contained in the variable opponents is what kind of data type?

g. The value contained in the variable win is what kind of data type?