CSCI 2330 – Binary Exercises

1. How many values can be represented using a 9-bit binary number?

2. Write decimal value 230 in (a) binary using 8 bits, and (b) hex.

3. Write binary value 0b10001111 in (a) decimal, and (b) hex.

4. Write hex value 0x55 in (a) decimal, and (b) binary using 8 bits.

5. Compute 0x69 | 0x55 and write your answer in hex.

6. Compute 0x69 || 0x55 and write your answer in hex.

7. C does not provide a logical XOR operator (which you might reasonably expect to be ^^). How could you compute the logical XOR of two ints **x** and **y** using existing logical operators (==, !=, ||, &&, and !)? **Hint:** The logical NOT operator (!) is a useful way to transform any numeric value into only the values 0 (false) or 1 (true).

8. Assuming 8-bit numbers, compute (a) 5 << 1, (b) 5 << 2, and (c) 5 << 3. Write your answers in decimal. What do you notice?