CSE 260M - Homework 1

Always show all work for full credit.

1. Determine the largest & smallest values (in decimal) that can be represented with 13-bits number for each representation:

a. Sign/magnitude

b. Unsigned

c. Two's complement

2. Fill in the missing values in the following table:

Binary	Decimal	Hex
	36	
	268	
		7E
		32

3. Convert the following numbers to 8-bit, two's complement:
a. 56

b. -42

CSE 260M - Homework 1

4. Convert the following 8-bit, two's complement numbers to decimal:
a. 1001 0101

b. 0110 1010

5. Perform the following additions of two's complement numbers:

a. 1011 0111
+ 0111 0110

b. 0111 0101
+ 0111 0011

c. 0111 1111
+ 0000 0001

6. Exercise 1.73 from the text: "A majority gate produces a TRUE output if and only if more than half of its inputs are TRUE. Complete a truth table for the three-input majority gate shown in Figure 1.42."

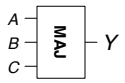

Figure 1.42

7. Convert the following 8-bit two's complement numbers to 16-bit two's complement numbers with the same value.
a. 1001 0101

b. 0110 1100