COMP 235 — Homework — Ch 4.1 – Ch 4.5

1. Convert the following decimal values to **two's compliment** binary and hexadecimal using two bytes .

   (a) 111

   (b) -74

   (c) 9357

   (d) -23576

2. What's the minimum and maximum value expressible with two byte, two's compliment representation? Give your answer in both the decimal and hexadecimal.

3. *Convert the following two's compliment values expressed in hexadecimal to binary and decimal.*

   (a) 0x8A

   (b) 0x5E

   (c) 0x7B

   (d) 0xCD

   (e) 0x2F

4. *Carry out the following one byte, two's compliment arithmetic. Account for overflow/truncation in your answers and clearly indicate any result that is mathematical incorrect due to overflow. Show your work. Do not convert to decimal, do the math, and convert back to binary.*

(a) 0b01001110 + 0b00111011

(b) 0b11011010 + 0b00010001

(c) 0b00000111 - 0b00101111

(d) 0b11110111 - 0b10010000

(e) 0b01101010 + 0b01110001

(f) 0b00010001 * 0b00000110

(g) 0b11111001 * 0b00001000

(h) 0b100001010 / 0b00001000