ECE 223 – Assignment #1

1-3 Convert the following binary numbers to decimal: 101110; 1110101.11; and 110110100.

1-5 Convert the following decimal numbers to binary: 1231; 673.23; 10^4; and 1998.

1-6 Convert the following decimal numbers to the indicated bases:
(a) 7562.45 to octal.
(b) 1938.257 to hexadecimal.
(c) 175.175 to binary.

1-8 Convert the following numbers from the given base to the other three bases indicated.
(a) Decimal 225 to binary, octal, and hexadecimal.
(b) Binary 11010111 to decimal, octal, and hexadecimal.
(c) Octal 623 to decimal, binary, and hexadecimal.
(d) Hexadecimal 2AC5 to decimal, octal, and binary.

1-15 Find the 1's and 2's complements of the following 8-digit binary numbers: 10101110; 10000001; 10000000; 00000001; and 00000000.

1-17 Perform the subtraction with the following unsigned binary numbers by taking the 2's complement of the subtrahend.

(a) 11010 − 10000
(b) 11010 − 1101
(c) 100 − 110000
(d) 1010100 − 1010100

Repeat 1-17 using 1's compliment

1-19 The binary numbers listed have a sign in the leftmost position and, if negative, are in 2's-complement form. Perform the arithmetic operations indicated and verify the answers.
(a) 101011 + 111000
(b) 001110 + 110010
(c) 111001 − 001010
(d) 101011 − 100110

1-23 Represent decimal number 8620 in (a) BCD, (b) excess-3 code, (c)2421 code, and (d) as a binary number.