ICT 1019Y Computer Architecture

Tutorial/Lab 01 on Number Systems

1. List the first 16 numbers in base 12. Use the letters A and B to represent the last two digits.

2. What is the largest binary number that can be obtained with 16 bits? What is its decimal equivalent?

3. Convert the following binary numbers to decimal: 10110; 10101; and 110110100.

4. Convert the following numbers with the indicated bases to decimal: $(12121)_8$; $(4310)_5$; $(50)_7$; and $(198)_{12}$.

5. Convert the following decimal numbers to binary: 1231; 673.23; 102; and 1998.

6. Convert the following decimal numbers to binary:
    a. 7562.45
    b. 1938.257
    c. 175.175

7. Convert the hexadecimal number F3A7C2 to binary and octal.

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.

9. Add the following by converting to binary first.
    a. $(367)_8$, and $(715)_{10}$
    b. $(15F)_{16}$ and $(A\ 7)_{16}$
    c. $(110110)_2$ and $(110)_{10}$.

10. Determine the value of base *x* if $(211)x = (152)_8$.