Tutorial 2
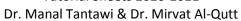
1) Determine the value of the base x if, $(410)_x = (226)_8$.

2) Perform the following additions

    a. $(2267)_8 + (1777)_8$
    b. $(2267)_9 + (1777)_9$
    c. $(2267)_{16} + (1777)_{16}$

3) Perform the following subtractions

    a. $(2267)_8 - (1777)_8$
    b. $(2267)_9 - (1777)_9$
    c. $(2267)_{16} - (1777)_{16}$

4) Perform the subtraction of the following unsigned binary numbers using 1's complement

    a. 11010-1101
    b. 1011-1111
    c. 10011 – 10010
    d. 100010 – 100110

5) Perform the subtraction of the following unsigned binary numbers using 2's complement

    a. 11010-1101
    b. 1011-1111
    c. 10011 – 10010
    d. 100010 – 100110

6) Follow the instructions

    a. Find the 16's complement of $(C3DF)_{16}$.
    b. Convert C3DF to binary.
    c. Find the 2's complement of the result in (b)
    d. Convert the answer in (c) to hexadecimal and compare with the answer in (a).

7) Apply DeMorgan law to the following expressions

    a. A + B'
    b. X'Y + XZ'
    c. ((A+B). D)'
    d. ((A B' + C). D' + E)'

8) Simplify the following Boolean expressions to a minimum number of literals:

   a. x.(x+y)
   b. x′ y z + x z
   c. xy + xy′
   d. (x + y) (x + y′)
   e. xyz + x'y + xyz'