Assignment-1

Q1. Convert the following numbers with the indicated bases

a) $(4310)_5 = ?_8 = ?_{BCD}$
b) $(110.010)_{12} = ?_{\ 2} = ?_8$
c) $(DADA.B)_{16} = ?_5$

Q2. Evaluate the $9's\ and\ 10's\ complement\ of\ 54760,003497$

Q3. Determine the *2's* complement of 1001100, 0011010

Q4. Perform the binary subtraction with the concept of 1's and 2's complement

a) $X - Y$
b) $Y - X$
c) $-X\ -Y$
where $X = 1011100, Y = 1001011$

Q5. Performs the BCD addition and subtraction between the given pair of numbers

a) X= 0100, Y= 0101
b) X = 1000, Y = 1001

Q6. Convert decimal +49 and +29 to binary, using the signed-2's-complement representation and enough digits to accommodate the numbers. Then perform the binary equivalent of (+29) + (-49), (-29) + (+49), and (-29) + (-49). Convert the answers back to decimal and verify that they are correct.

Q7.

(a) Find the 16's complement of C3DF.
(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)

Q8. Perform the following division in binary: 111011 ÷ 101

Q9. Perform the following multiplication in binary: 111011 X 101

Q10. The solutions to the quadratic equation $x^2 - 11x + 22 = 0$ are x = 3 and x = 6. What is the base of the numbers?