Tutorial-III (Mathematical Background)

1. Draw the addition and multiplication table for GF (2^2).

2. In GF (2^4), find the inverse of ($x^2 + 1$) modulo ($x^4 + x + 1$)

3. Find the result of multiplying $P_1 = (x^5 + x^2 + x)$ by $P_2 = (x^7 + x^4 + x^3 + x^2 + x)$ in GF(2^8)

4. Determine which of the following polynomials are reducible over GF(2).

a. $x^2 + 1$

b. $x^2 + x + 1$

c. $x^4 + x + 1$

5. Determine the gcd of the following pairs of polynomials.

($x^3 + 1$) and ($x^2 + x + 1$) over GF(2)