L7 practice problems

000 0
001 1
010 1
011 1
100 0
101 0
110 0
111 0

0000 0
0001 0
0010 1
0011 0
0100 1
0101 0
0110 1
0111 0
1000 0
1001 0
1010 1
1011 0
1100 0
1101 0
1110 1
1111 0

1. Construct the truth table for the following logic functions.
   a. F(X,Y,Z) = X'Y + X'Y'Z
   b. F(A,B,C,D) = (((A+B')'+C)'+D)'

F=sum m(1,2,3)

2. Write the canonical sum-of-minterm expression for output F in question 1(a).
3. Write the canonical product-of-maxterm expression for output F in question 1(b). F=pro M(0,1,3,5,7,8,9,11,12,13,15)
4. These expressions are taken from lecture slides 5.23. Use algebraic manipulations to simplify each of them and obtain the minimum cost SOP expression.
   (Students are required to know and apply Boolean theorems but are not required to cite the name of the theorems used)

   a. Z = ABC + AB'(A'C')' =AB'+AC
   b. X = (A' + B)(A + B + D)D' =BD'