Homework 2

Task1: Prove the identity of each of the following Boolean equations, using algebraic manipulations:

1) $AB + BC'D' + A'BC + C'D = B + C'D$

2) $WY + W'YZ' + WXZ + W'XY' = WY + W'XZ' + X'YZ' + XY'Z$

3) $AC' + A'B + B'C + D' = (A' + B' + C' + D')(A + B + C + D')$

Task2: Find the complement of the following Boolean functions:

1) $F1 = AB' + A'B$

2) $F2 = (V'W + X)Y + Z'$

3) $F3 = WX(Y'Z + YZ') + W'X'(Y'+Z)(Y + Z')$

4) $F4 = (A + B' + C)(A'B' + C)(A + B'C')$

Task3: Convert the following Boolean functions into Canonical SOP and Canonical POS forms:

1) $F1 = (AB + C)(B + C'D)$

2) $F2 = X' + X(X + Y')(Y + Z')$

3) $F3 = (A + BC' + CD)(B' + EF)$

For the three tasks above you should show each step in your solution. Don't give only the final result!