Switching Algebra Extra exercises

1. Use switching-algebra theorems to simplify each of the following logic functions:

a. F = WXYZ(WXYZ’ + WX’YZ + W’XYZ + WXY’Z)

b. F = AB + ABC’D + ABDE’ + A’BC’E + A’B’C’E

c. F = MRP + QO’R’ + MN + ONM + QPMO’

d. F = (V + Y + Z)(V’ + W + X’)(V’ + X + Y’)(V + X’)

2. Write the truth table for each of the following logic functions:

a. F = X’Y + X’Y’Z

b. F = AB’ + B’C + CD’ + CA’

c. F = (A’ + B’CD)(B’ + C’ + DE’)

d. F = (((A + B’)’ + C)’ + D)’

3. Write the canonical sum ad product for each of the following logic functions:

a. F = $\sum_{X, Y}$ (1,2)

b. F = $\prod_{A,B,C}$ (1, 2, 4)

c. F = $\sum_{A,B,C,D}$ (1, 2, 5, 6)

d. F = X’ + YZ