Homework #3

2.14 Implement the Boolean function

$$F = x'y' + x'z + xy$$

(a) With AND, OR, and inverter gates
(b)* With OR and inverter gates

2.20 Express the complement of the following functions in sum-of-minterms form:
(a) $F(A,B,C,D) = \Sigma(0,3,5,7,9,11,13)$
(b) $F(x,y,z) = \Pi(2,4,6,8)$

3.3* Simplify the following Boolean expressions, using three-variable maps:
(a)* $F(x,y,z) = xyz + x'y + xyz'$ (b)* $F(x,y,z) = x'yz + xyz' + xyz + x'yz' + xy'z'$

3.5 Simplify the following Boolean functions, using four-variable maps:
(a)* $F(w,x,y,z) = \Sigma(0,4,6,8,14,15)$
(b) $F(A,B,C,D) = \Sigma(2,3,6,7,12,13,14)$

3.7 Simplify the following Boolean expressions, using four-variable maps:
(a)* $w'z + xz + x'y + wx'z$
(b) $ACD' + B'C'D + BCD + BC'$