

Answers

1. (a) $X = [(A + B) B C]'$
2. (b) There are 7 1's in the Y column of the truth table
3. a) $X = A'B'D' + CD'$
b) $X = A' + B' + C + D$
c) $X = AB' + AC + B'C$
5. a) 8 two-input NAND gates needed.
b) 3 two-input NOR gates needed.