* Prove the Identity of each the following Boolean equations, using algebraic manipulation.

1. $\overline{X}\,\overline{Y} + \overline{X}\,Y + X\,Y = \overline{X} + Y$

2. $Y + \overline{X}\,Z + X\,\overline{Y} = X + Y + Z$

3. $\overline{X}\,\overline{Y} + \overline{Y}\,Z + X\,Z + X\,Y + Y\,\overline{Z} = \overline{X}\,\overline{Y} + X\,Z + Y\,\overline{Z}$

4. $A\,B\,\overline{C} + B\,\overline{C}\,\overline{D} + B\,C + \overline{C}\,D = B + \overline{C}\,D$

* Simplify the following Boolean expressions to expressions containing a minimum number of literals.

5. $\overline{A}\,\overline{C} + \overline{A}\,B\,C + \overline{B}\,C$

6. $A\,B\,\overline{C} + A\,C$

7. $\overline{A}\,\overline{B}\,D + \overline{A}\,\overline{C}\,D + B\,D$

8. $\left(\overline{\overline{A} + B}\right) + \left(\overline{\overline{A} + \overline{C}}\right) + \overline{\left(A\,\overline{B}\,C\right)}$

* Reduce the following Boolean expressions to the indicated numbers of literals.

9. $\overline{X}\,\overline{Y} + X\,Y\,Z + \overline{X}\,Y$ to three literals

10. $X + Y\left(Z + \overline{X + Z}\right)$ to two literals

11. $\overline{W}\,X\left(\overline{Z} + \overline{Y}\,Z\right) + X\left(W + \overline{W}\,Y\,Z\right)$ to one literal

* Find the complement of the following expressions

12. $(\overline{X}+\overline{Y})Z$

13. $W+(Y+\overline{Z}+YZ)+\overline{W}X+(\overline{Y}+Z)(Y+\overline{Z})$

14. $(A+B+\overline{C})(\overline{A}B+C)(A+B\overline{C})$

1. 과제 제출 양식
   - A4 용지에 수기로 문제와 답을 작성
   - 표지는 없어도 되며 첫 장 상단에 학번과 이름을 작성할 것
2. 과제 제출 기한 : 3월 30일(화)까지
   - 스캔하여 게시판에 올리기(핸드폰으로 찍어도 상관없음)