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(Need to show all steps)

1. Simplify, using algebraic manipulations, the following Boolean expression to a minimum number of terms and factors.

- $XYZ + \overline{X}Y + XY\overline{Z}$

2. Simplify, using algebraic manipulations, the following Boolean expression to a minimum number of terms and factors.

- $\overline{X}Y(\overline{X} + Y)(\overline{Y} + Y)$

3. Find the complement and simplify the following expression, to a minimum number of terms and factors.

- $X\overline{Y} + \overline{X}Y$

4. Find the complement and simplify the following expression, to a minimum number of terms and factors.

- $XY + \overline{X}\overline{Y}$

5. Using **DeMorgan's Theorem**, simplify the following expression, to a minimum number of terms and factors.

- $F = \overline{\overline{A}B + A + \overline{A}B}$

6. Using **DeMorgan's Theorem**, simplify the following expression, to a minimum number of terms and factors.

- $F = \overline{\overline{A}B\overline{C} + \overline{C}D + \overline{C}E}$

7. Simplify the following expression by means of a three-variable **K-Map**, to a minimum number of terms and factors.

- $XY + Y\overline{Z} + \overline{X}\overline{Y}\overline{Z}$

8. Simplify the following expression by means of a four-variable **K-Map**, to a minimum number of terms and factors.

- $\overline{A}D + BD + \overline{B}C + A\overline{B}D$

9. Simplify the following expression by means of a four-variable **K-Map**, to a minimum number of terms and factors.

- $ABC + CD + B\overline{C}D + \overline{B}C$

10. Simplify the following expression by means of a four-variable **K-Map**, to a minimum number of terms and factors.

- $ABC + CD + B\overline{C}D + \overline{B}C$, with don't care condition: $x = \overline{A}B\overline{C}\overline{D}$

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- At the end of each problem **CLEARLY** state the final result
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- How can I submit my assignment?

The homework-report should **ALL** be written ... using only a word processor (Microsoft WORD, ..., or $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$). **Absolutely no handwriting/handgraphing and photographing**). Writing the report follow the sample homework given in CANVAS (Files).

... Upload the report in PDF to CANVAS