C16

The problems in this problem set cover lecture C16

1.

a. Using truth tables, show that $\overline{A} \langle \overline{B} = \overline{(A + B)}$

b. Using K-Maps, simplify the following expression:

$$\overline{A} \langle \overline{B} \langle \overline{C} + \overline{A} \langle \overline{B} \langle C + A \langle \overline{B} \langle C + A \langle \overline{B} \langle \overline{C}$$

c. Using K-Maps, simplify the following expression:
$A \langle B \langle D + \overline{B} \langle C \langle D + \overline{A} \langle B \langle C \langle D + \overline{C} \langle D$

d. Simplify the same expression using the rules of simplification (Boolean Algebra Theorems).

Note: When using truth tables, list the complete table.
When using K-Maps, show the simplifications on the diagram.
When using rules of simplification, state the rule being used on the same line in square brackets.

2. Convert the following expression into product of sum form:

$$\overline{A} \langle \overline{B} \langle \overline{C} + \overline{A} \langle B \langle C + A \langle B \langle \overline{C} + A \langle \overline{B} \langle C$$