Name _____

Simplifying Boolean Expressions
(Minterm Expressions & Karnaugh Maps)
HOMEWORK #1

For each of the following truth tables, write the <u>unsimplified</u> boolean expression:

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

table 1

expression: _____

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

table 2

expression: _____

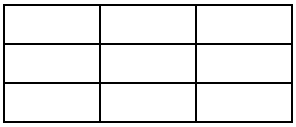
A	B	C	D	Y
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	0
1	0	0	1	1
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

table 3

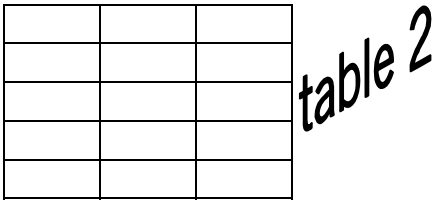
expression: _____

Karnaugh Maps

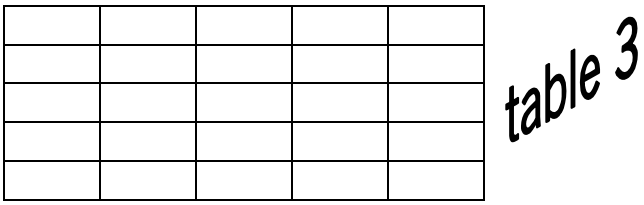
For each of the unsimplified Minterm expressions on the other side, fill-in the K-Map tables and then write the simplified boolean expression:



simplified expression: _____



simplified expression: _____



simplified expression: _____

Simplify the following expressions using K-Maps. Also, give the original unsimplified truth tables.

1) $A + A\overline{B}$

2) $AB + A\overline{B}C + \overline{A}BC$