Answer on Question #78941 – Math – Discrete Mathematics

Question

Minimize the following problems using the Karnaugh maps method:
Z = f(A, B, C) = B + AB + AC

Solution

Build the truth table and the Karnaugh-map:

A	B	C	f(A,B,C)
0	0	0	f1
0	0	1	f2
0	1	0	f3
0	1	1	f4
1	0	0	f5
1	0	1	f6
1	1	0	f7
1	1	1	f8

A\BC	00	01	11	10
0	f1	f2	f4	f3
1	f5	f6	f8	f7

Fill in them:

A	B	C	f(A,B,C)
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

A\BC	00	01	11	10
0	0	0	1	1
1	0	1	1	1

Form the groups:

A\BC	00	01	11	10
0	0	0	1	1
1	0	1	1	1

Thus, Z = B + AC

Answer:

$Z = f(A, B, C) = B + AB + AC = B + AC$