Answer on Question # 43500, Engineering, Other

Task: Simplify the following Boolean function:

F = A'C + A'B + AB'C + BC, using K-map?

Solution:

So, we must do for simplifiing the following Boolean function:

1. Construct a K-map.
2. Find all groups of horizontal or vertical adjacent squares that contain 1.
    a. Each group must be either rectangular or square with 2^n squares.
    b. Each group should be as large as possible.
    c. Each **1** on the K-map must be covered at least once. The same 1 can be included in several groups if necessary.
    d. Nonessential groups are omitted. (A nonessential group does not contain a 1 that is not covered by any other group)
    e. Adjacency applies to both vertical and horizontal borders.
3. Translate each group into a product term by eliminating any variable whose value changes from cell to cell.
4. Sum all the product terms.

			B	
0	*x'y'z'*	*x'y'z*	*x'yz*	*x'yz'*
A 1	*xy'z'*	*xy'z*	*xyz*	*xyz'*
		C		

F = A'C + A'B + AB'C + BC :

	00	01	11	10
		1	1	1
x 1		1	1	

F = C + A'B

Answer: F = C + A'B.