

* Variable Entrant MAP (VEM)
 ↳ KMAP with variable in cell

A \ B	0	1
0	C	C
1	1	\bar{C}

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

$$f(A,B,C) = \sum m(1,2,3,5,6)$$

AB \ BC	0	1
00	0	4
01	1	5
11	3	7
10	2	6

$$\bar{B}C + B\bar{C} + \bar{A}C$$

or Δw

$$\bar{B}C + B\bar{C} + \bar{A}B$$

A \ B	0	1
0	1	1
1	0	0

A \ B	0	1
0	C(0,1)	1(4,5)
1	\bar{C} (2,3)	0(6,7)

$$f(A,B,C) = \sum m(1,2,4,5)$$

$C \rightarrow$ first second (0,1)

$\bar{C} \rightarrow$ second first (2,3)

1 \rightarrow both (0, (4,5))

0 \rightarrow None (6,7)

A \ B	0	1
0	\bar{C}	0
1	C	\bar{C}

$$\sum m(0,3,6)$$

C \rightarrow append 1

$\bar{C} \rightarrow$ append 0

Another way

Step 1 → Put all 0's wherever C or \bar{C} present

		A		
B		0	1	
		C	\bar{C}	
0		0	0	$\bar{A}B$
1		1	0	

Step 2 → Put C as 0 & \bar{C} as 1 & 1 as don't care term. & associate \bar{C} with each term.

		A		
B		0	1	
		C	\bar{C}	
0		0	0	$\bar{A}B$
1		1	0	

		A		
B		0	1	
		C	\bar{C}	
0		0	0	$\bar{A}B$
1		X	1	

Step 3 → Put C as 1 and \bar{C} as 0 and 1 as don't care term & associate C with each term.

		A		
B		0	1	
		C	\bar{C}	
0		0	0	$\bar{A}B$
1		1	0	

		A		
B		0	1	
		C	\bar{C}	
0		1	1	$\bar{B}C$
1		X	0	

Step 4 → OR all the terms

$$\bar{A}B + \bar{B}C + B\bar{C} \text{ Ans}$$

———— * ———— * ————

$$\begin{aligned} D &\rightarrow 1 \\ \bar{D} &\rightarrow 0 \end{aligned}$$

C	AB			
	00	01	11	10
0	D	1	\bar{D}	\bar{D}
1	D	1	0	X

$$f(A, B, C, D) = \sum m(1, 3, 4, 5, 6, 7, 8, 12) + d(10, 11)$$

CD	AB			
	00	01	11	10
00	0	1	1	1
01	1	1	0	0
11	1	1	0	X
10	0	1	0	+

$$\bar{A}D + \bar{A}B + \bar{A}\bar{C}\bar{D} \quad \underline{\text{Ans}}$$

Using ~~ent~~ other method

S2

C	AB			
	00	01	11	10
0	0	+	1	1
1	0	+	0	X

$$A\bar{C}\bar{D}$$

S1

C	AB			
	00	01	11	10
0	0	1	0	0
1	0	1	0	X

$$\bar{A}B$$

S2

C	AB			
	00	01	11	10
0	1	X	0	0
1	1	X	0	X

$$\bar{A}\bar{B}\bar{D} \quad \bar{A}D$$

$$\bar{A}D + \bar{A}B + A\bar{C}\bar{D} \quad \underline{\text{Ans}}$$

Same as above

Q. $f(A, B, C) = \sum m(3, 5, 6, 7)$ is realized by VEH find P, Q, R, S

B \ A	0	1
0	P	S
1	R	Q

$P=0, R=C, S=C$
 $Q=1$

Step 1

xy \ z	00	01	11	10
0	0	A	1	\bar{A}
1	B	0	X	C

Step 1

xy \ z	00	01	11	10
0	0	0	1	0
1	0	0	X	0

Step 2 $A=1, 1 \rightarrow X$

Step 2

xy \ z	00	01	11	10
0	0	1	X	0
1	0	0	X	0

$Ay\bar{z}$

Step 3 $B=1, 1 \rightarrow X$

Step 3

xy \ z	00	01	11	10
0	0	0	X	0
1	1	0	X	0

$B\bar{x}\bar{y}z$

Step 4 $\bar{A}=1, 1 \rightarrow X$

Step 4

xy \ z	00	01	11	10
0	0	0	X	1
1	0	0	X	0

$\bar{A}xz$

Step 5 $C=1, 1 \rightarrow X$

Step 5

xy \ z	00	01	11	10
0	0	0	X	0
1	0	0	X	1

Cxz

$xy + Ay\bar{z} + B\bar{x}\bar{y}z + \bar{A}xz + Cxz$