

Sum of minterms $\rightarrow ACE + ACF + BCE + BCF$
 $+ ADE + ADF + BDE + BDF$

Product of max-terms $\rightarrow (A+B)(C+D)(E+F)$

Functions

4 variables — A, B, C, D

A	B	C	D	$f(A, B, C, D)$	\bar{f}
0	0	0	0	1	0
0	0	0	1	1	0
		⋮		0	1
1	1	1	0	1	0
1	1	1	1	1	0



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A	B	C	f
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

$$f = \sum 3, 5, 6, 7 \checkmark$$

$$f = \bar{A}BC + A\bar{B}C + ABC\bar{C} + ABC$$

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$$f = \sum 0, 1, 2, 4$$

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

$$\prod (0, 1, 2, 4) = f = \frac{(A+B+C)(A+B+\bar{C})(A+\bar{B}+C)}{(\bar{A}+B+C)}$$



$$f = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C} + AB\bar{C}$$

Karnaugh
Quinn - McCluskey

EEEL201: Digital Electronic Circuits

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KARNAUGH MAPS

$f(A, B)$

		B	
		0	1
A	0	1	0
	1	1	0

$$f = \sum 0, 2 = \overline{B}$$

$f(A, B, C)$

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

$$f = \sum 3, 5, 6, 7$$

$$AC + BC + AB$$



	CD	00	01	11	10
AB	00	0	1	3	2
	01	4	5	7	6
	11	12	13	15	14
	10	8	9	11	10

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