

5 variable K-map

		CDE							
		000	001	011	010	110	111	101	100
A	AB								
	00	0	1	3	2	6	7	5	4
	01	8	9	11	10	14	15	13	12
	11	24	25	27	26	30	31	29	28
	10	16	17	19	18	22	23	21	20

Diagram illustrating a 5-variable K-map (Karnaugh map) for 32 minterms. The map is a 4x8 grid of squares, each containing a minterm number (0 to 31). The variables are labeled as follows:

- A**: Vertical axis (rows), with values 00, 01, 11, 10.
- B**: Horizontal axis (columns), with values 000, 001, 011, 010, 110, 111, 101, 100.
- C**: Grouping variable (columns), with values 000, 001, 011, 010, 110, 111, 101, 100.
- D**: Grouping variable (rows), with values 00, 01, 11, 10.
- E**: Grouping variable (columns), with values 000, 001, 011, 010, 110, 111, 101, 100.

- 5 variables -> 32 minterms, hence 32 squares required

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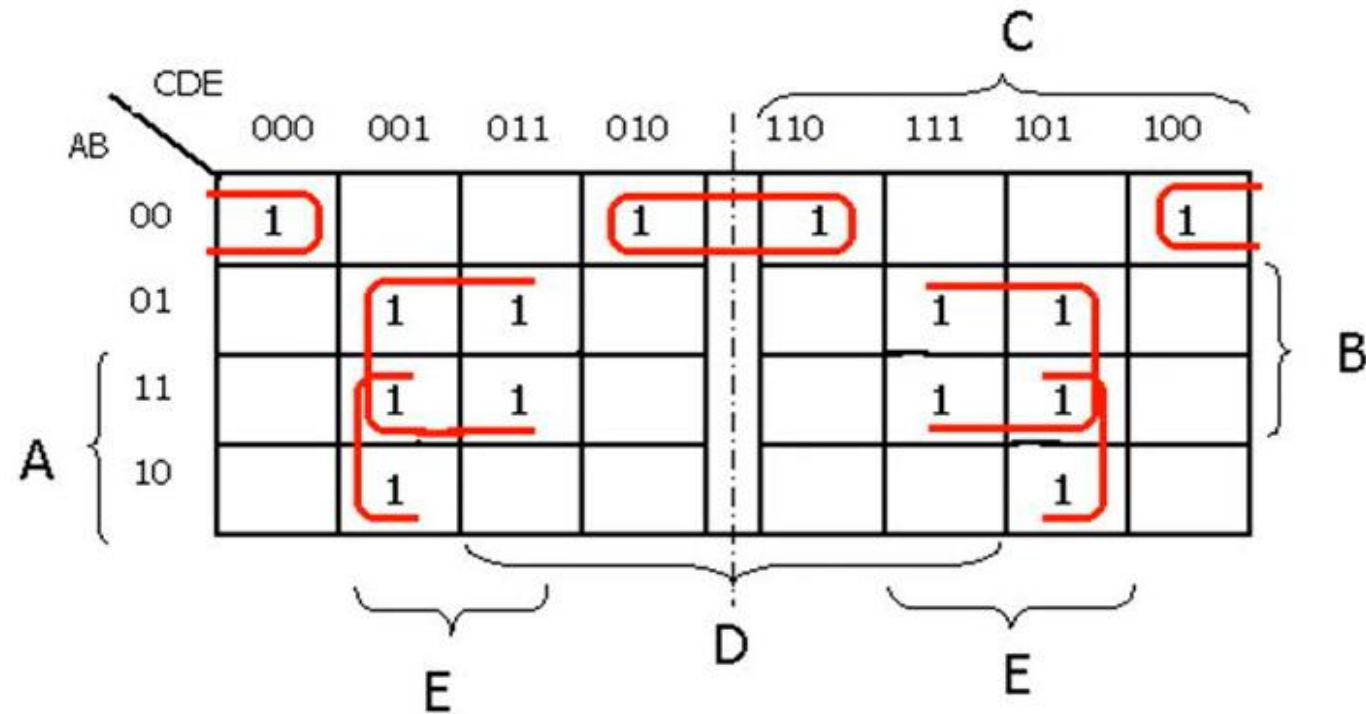
- Adjacent squares. E.g. square 15 is adjacent to 7,14,13,31 and its mirror square 11.
 - The centre line must be considered as the centre of a book, each half of the K-map being a page
 - The centre line is like a mirror with each square being adjacent not only to its 4 immediate neighbouring squares, but also to its mirror image.
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Example: Simplify the Boolean function

$$F_{(ABCDE)} = \Sigma(0,2,4,6,11,13,15,17,21,25,27,29,31)$$

$$\text{Soln: } F_{(ABCDE)} = BE + AD'E + A'B'E'$$



6 variable K-map

		DEF								
		000	001	011	010	110	111	101	100	
ABC	000	0	1	3	2		6	7	5	4
	001	8	9	11	10		14	15	13	12
	011	24	25	27	26		30	31	29	28
	010	16	17	19	18		22	23	21	20
	110	48	49	51	50		54	55	53	52
	111	56	57	59	58		62	63	61	60
	101	40	41	43	42		46	47	45	44
100	32	33	35	34		38	39	37	36	

❑ 6 variables -> 64 minterms, hence 64 squares required

**SEE EXAMPLES
FROM BOOK**