

Diagram illustrating a 4-variable Karnaugh map (K-map) for variables x_1, x_2, x_3, x_4 .

The map is a 4x4 grid with columns labeled x_1x_2 (00, 01, 11, 10) and rows labeled x_3x_4 (00, 01, 11, 10). The cells contain binary values (0 or 1), and groups of 1s are circled to indicate simplification opportunities.

	x_1x_2 00	x_1x_2 01	x_1x_2 11	x_1x_2 10
x_3x_4 00	1	1	0	1
x_3x_4 01	1	0	1	1
x_3x_4 11	1	1	0	0
x_3x_4 10	1	0	0	1

Groups of 1s (circled in the original image):

- Group 1: $x_3x_4 = 00$ (Cells: 00, 01)
- Group 2: $x_3x_4 = 10$ (Cells: 00, 01)
- Group 3: $x_1x_2 = 00$ (Cells: 00, 01)
- Group 4: $x_1x_2 = 10$ (Cells: 00, 01)
- Group 5: $x_1x_2 = 11$ (Cells: 01, 11)
- Group 6: $x_1x_2 = 10$ (Cells: 01, 11)
- Group 7: $x_1x_2 = 11$ (Cells: 11, 10)
- Group 8: $x_1x_2 = 10$ (Cells: 11, 10)