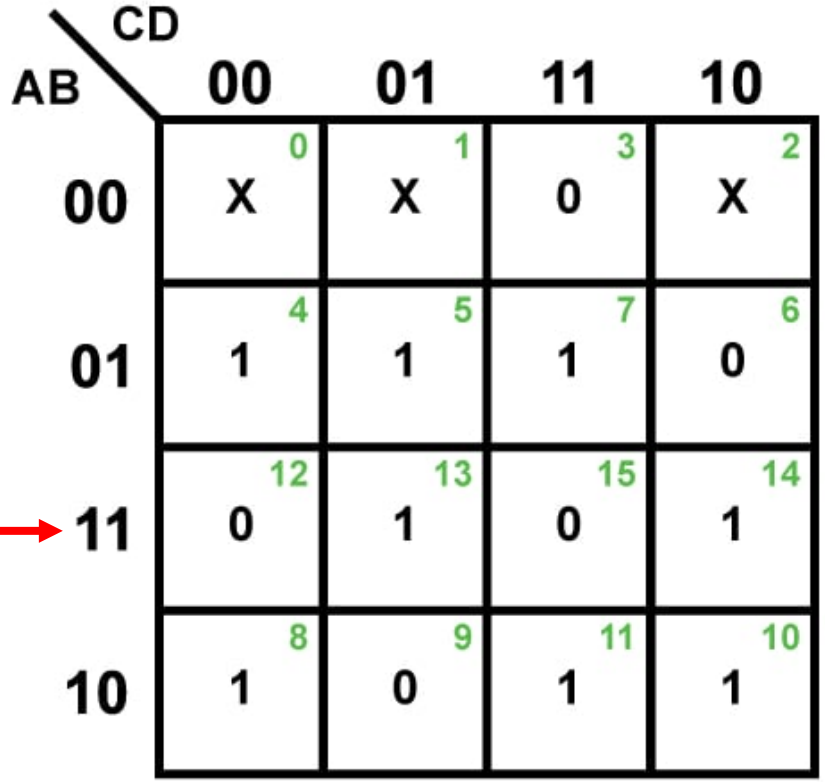
Karnaugh Maps

What is a Karnaugh Map?

- A Karnaugh Map is a way of displaying a truth table into a different format
- They allow you to easily write out notation for a truth table



Columns/row must be in this order to ensure only one-bit changes per column/row

Steps To Drawing A Karnaugh Map

1. Draw out the grid, making sure rows and columns are in the correct order

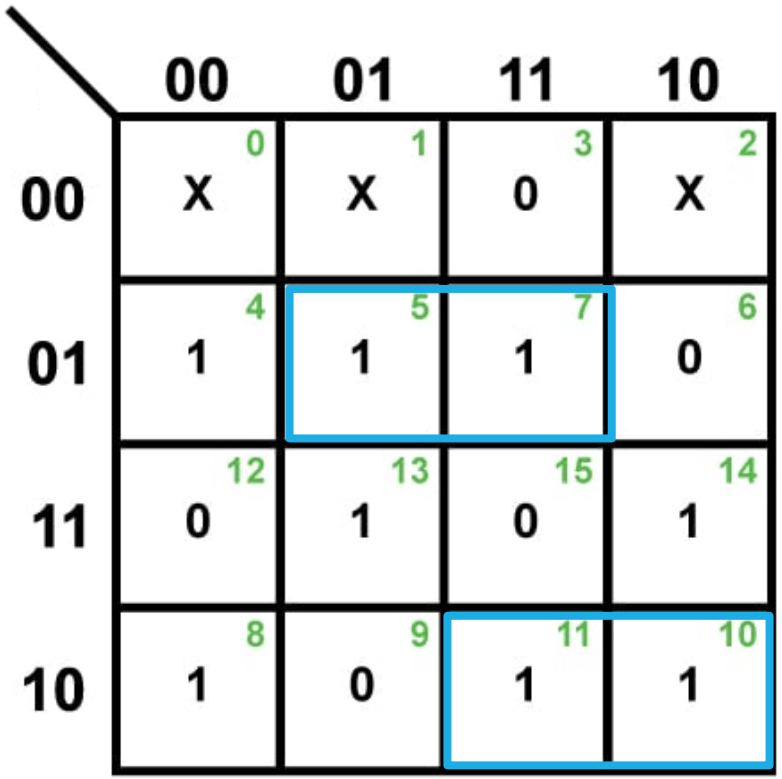
2. Put your variables in their spots

3. Put all possible combos of those variables in

4. Fill out the table based on the truth table

5. Draw rings around similar outcomes in groups of 1, 2, 4, 8, 16…

6. Write out the notation based on these groups



Example of Drawing Out A Karnaugh Map

A	B	C	Q1
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

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

Q= BC'+ AB'

Your Turn

Draw a Karnaugh Map for this table and then write its notation:

AB / C	00	01	10	11
0				
1				

A	B	C	Q1
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

Your Turn

Draw a Karnaugh Map for this table and then write its notation:

AB / C	00	01	10	11
0				
1				

A	B	C	Q1
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

Your Turn

Draw a Karnaugh Map for this table and then write its notation:

A / B	0	1
0		
1		

A	B	Q1
0	0	0
0	1	1
1	0	1
1	1	1