2021-01-27 Karnaugh Maps

Wednesday, January 27, 2021 8:42 AM

Conversion Warm-ups

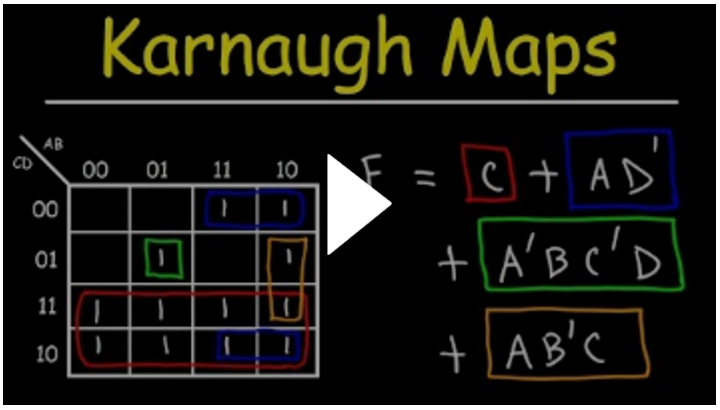
- What is CF in binary?
  - A=10; B=11; C=12; D=13; E=14; F=15
    - 1100 1111
- Assume we're using signed integers. What is CF in signed decimal?
  - N + -N = 0
  - -N = NOT(N) + 1
  - -N = 1100 1111
  - 1100 1110
  -

0	0	1	1	0	0	0	1
		32	16				1

  - 32 + 16 + 1 = 49
  - 11001110 -> 11001111

Karnaugh Maps

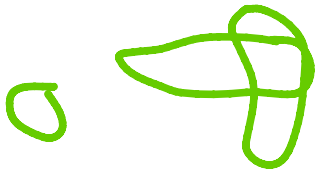
- [Introduction to Karnaugh Maps - Combinational Logic Circuits, Functions, & Truth Tables]



Mux Truth Table

A	B	SEL	OUT
0	0	0	0
0	1	0	0
1	0	0	1
1	1	0	1
0	0	1	0
0	1	1	1
1	0	1	0
1	1	1	1

SEL
0
1



	A/B	00	01	11	10
SEL					
0		0	0	1	1
1		0	1	1	0

OUT = A(SELNOT) + AB + B(SEL)

OUT = B(SEL) + A(SELNOT)

Mux8way16

Sel[2]	Sel[1]	Sel[0]	Out
0	0	0	A
0	0	1	B
0	1	0	C
0	1	1	D
1	0	0	E
1	0	1	F
1	1	0	G
1	1	1	H

- 8 possibilities
- 4 possibilities: A+B; C+D; E+F; G+H
- 2 possibilities: A+B+C+D; E+F+G+H
- 1 possibility : end result