HEX XOR table for BIP-39 CheatSheet

2021, created by moonsettler

Hexadecimal XOR table for single digit

⊕	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	1	0	3	2	5	4	7	6	9	8	B	A	D	C	F	E
2	2	3	0	1	6	7	4	5	A	B	8	9	E	F	C	D
3	3	2	1	0	7	6	5	4	B	A	9	8	F	E	D	C
4	4	5	6	7	0	1	2	3	C	D	E	F	8	9	A	B
5	5	4	7	6	1	0	3	2	D	C	F	E	9	8	B	A
6	6	7	4	5	2	3	0	1	E	F	C	D	A	B	8	9
7	7	6	5	4	3	2	1	0	F	E	D	C	B	A	9	8
8	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7
9	9	8	B	A	D	C	F	E	1	0	3	2	5	4	7	6
A	A	B	8	9	E	F	C	D	2	3	0	1	6	7	4	5
B	B	A	9	8	F	E	D	C	3	2	1	0	7	6	5	4
C	C	D	E	F	8	9	A	B	4	5	6	7	0	1	2	3
D	D	C	F	E	9	8	B	A	5	4	7	6	1	0	3	2
E	E	F	C	D	A	B	8	9	6	7	4	5	2	3	0	1
F	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0

HEX	BIN
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

Rules of ⊕ (XOR)

n ⊕ 0	=	n	0 is the identity element
n ⊕ n	=	0	self-inverse (inverse of XOR is XOR)
n ⊕ F	=	F-n	negation
n ⊕ m	=	m ⊕ n	commutative (order irrelevant)
(i ⊕ j) ⊕ k	=	i ⊕ (j ⊕ k)	associative (order irrelevant)
(s ⊕ k) ⊕ k	=	s	XOR cipher (s secret, k key)

[n1, n2, n3, …] ⊕ [m1, m2, m3, …] = [n1⊕m1, n2⊕m2, n3⊕m3, …]

Binary XOR table for 2 bits

⊕	00	01	10	11
00	00	01	10	11
01	01	00	11	10
10	10	11	00	01
11	11	10	01	00

Tips & Tricks

XOR is a bitwise operation (which means it has no carry), and since all HEX numbers represent 4 bits exactly, large HEX numbers can be conveniently XOR-ed digit by digit.

1A3 ⊕ 52F = 48C

[1, A, 3] ⊕ [5, 2, F] = [4, 8, C]