XOR TABLE (HEX)

XOR	**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

Identities:

$x \oplus 0 = x$ (i.e., $0 \oplus 0 = 0$, $1 \oplus 0 = 1$)
$x \oplus 1 = \neg x$ (i.e., $0 \oplus 1 = 1$, $1 \oplus 1 = 0$)
$x \oplus x = 0$ (i.e., $0 \oplus 0 = 0$, $1 \oplus 1 = 0$)
$x \oplus \neg x = 1$ (i.e., $0 \oplus 1 = 1$)

AND TABLE (HEX)

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

Identities:

x • 0 = 0 (i.e., 0 • 0 = 0, 1 • 0 = 0)
x • 1 = x (i.e., 0 • 1 = 0, 1 • 1 = 1)
x • x = x (i.e., 0 • 0 = 0, 1 • 1 = 1)
x • ¬x = 0 (i.e., 0 • 1 = 0)

OR TABLE (HEX)

OR	**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	1	3	3	5	5	7	7	9	9	B	B	D	D	F	F
2	2	3	2	3	6	7	6	7	A	B	A	B	E	F	E	F
3	3	3	3	3	7	7	7	7	B	B	B	B	F	F	F	F
4	4	5	6	7	4	5	6	7	C	D	E	F	C	D	E	F
5	5	5	7	7	5	5	7	7	D	D	F	F	D	D	F	F
6	6	7	6	7	6	7	6	7	E	F	E	F	E	F	E	F
7	7	7	7	7	7	7	7	7	F	F	F	F	F	F	F	F
8	8	9	A	B	C	D	E	F	8	9	A	B	C	D	E	F
9	9	9	B	B	D	D	F	F	9	9	B	B	D	D	F	F
A	A	B	A	B	E	F	E	F	A	B	A	B	E	F	E	F
B	B	B	B	B	F	F	F	F	B	B	B	B	F	F	F	F
C	C	D	E	F	C	D	E	F	C	D	E	F	C	D	E	F
D	D	D	F	F	D	D	F	F	D	D	F	F	D	D	F	F
E	E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

Identities:

x + 0 = x (i.e., 0 + 0 = 0, 1 + 0 = 1)
x + 1 = 1 (i.e., 0 + 1 = 1, 1 + 1 = 1)
x + x = x (i.e., 0 + 0 = 0, 1 + 1 = 1)
x + ¬x = 1 (i.e., 0 + 1 = 1)

THE IDENTITIES SUMMARIZED

	XOR	AND	OR
x ? 0	$x \oplus 0 = x$	$x \bullet 0 = 0$	$x + 0 = x$
x ? 1	$x \oplus 1 = \neg x$	$x \bullet 1 = x$	$x + 1 = 1$
x ? x	$x \oplus x = 0$	$x \bullet x = x$	$x + x = x$
x ? ¬x	$x \oplus \neg x = 1$	$x \bullet \neg x = 0$	$x + \neg x = 1$

GCK, 12/18/2000
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