Notation Key:

- **Inputs:** A (MSB), B, C (LSB).
- **String:** Represents outputs for inputs counting up (e.g., for 2 inputs: 00, 01, 10, 11).
- **Operators:** ! (NOT), * (AND), + (OR), # (XOR).

1 Input (A)

Total Functions: 4

Truth String	Reduced Expression
00	0
01	A
10	!A
11	1

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2 Inputs (A, B)

Total Functions: 16

Input order: 00, 01, 10, 11

Truth String	Reduced Expression	Function
0000	0	False
0001	A * B	AND
0010	A * !B	A and Not B
0011	A	A
0100	!A * B	Not A and B
0101	B	B
0110	A # B	XOR
0111	A + B	OR
1000	!(A + B)	NOR
1001	!(A # B)	XNOR
1010	!B	Not B
1011	A + !B	Implies (B -> A)
1100	!A	Not A
1101	!A + B	Implies (A -> B)
1110	!(A * B)	NAND
1111	1	True

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3 Inputs (A, B, C)

Total Functions: 256

Input order: 000, 001, 010, 011, 100, 101, 110, 111

Listing all 256 reduced expressions is impractical for this format. Below are the most significant mathematical and logical functions from the set.

Truth String	Reduced Expression	Function
00000000	0	False
00000001	A * B * C	3-input AND
00010111	(A * B) + (B * C) + (A * C)	Majority Gate
00110101	(A * C) + (!A * B)	MUX (A=Select, B=0, C=1)
01101001	A # B # C	3-input XOR (Parity)
01111111	A + B + C	3-input OR
10000000	!(A + B + C)	3-input NOR
10010110	!(A # B # C)	3-input XNOR
11101000	!((A * B) + (B * C) + (A * C))	Minority Gate
11111110	!(A * B * C)	3-input NAND
11111111	1	True