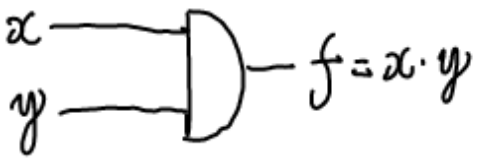
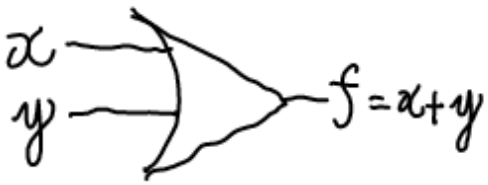
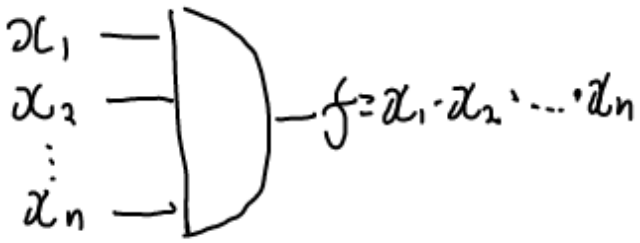
Schematic Symbols

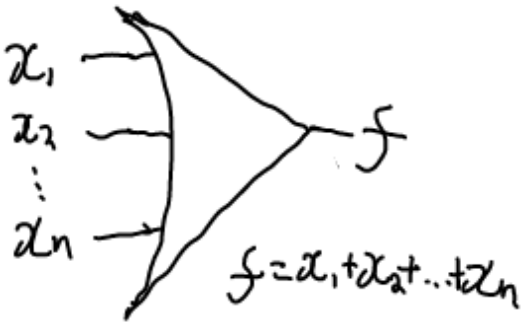
AND



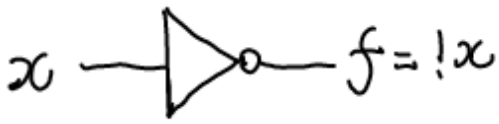
OR







NOT



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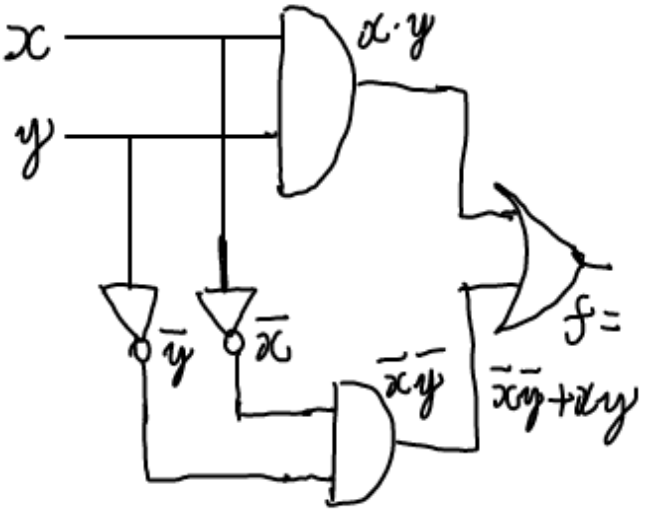
x	y	f
0	0	1
0	1	0
1	0	0
1	1	1

$f = \bar{x}\bar{y} + xy$



$f = m_1 + m_4$
$= \bar{x}\bar{y} + xy$

Q. how to write logic eqn given truth table?

minterm - for each row of the truth table. You can write an "AND".
if input x is 1 include x, if x is 0 include !x.

maxterm - for each row of the truth table. You can write an "OR".
if input x is 0 include x, if x is 1 include !x.

x	y	z	minterms		maxterms	
0	0	0	$\bar{x}\bar{y}\bar{z}$	m_0	$x+y+z$	M_0
0	0	1	$\bar{x}\bar{y}z$	m_1	$x+y+\bar{z}$	M_1
0	1	0	$\bar{x}y\bar{z}$	m_2	$x+\bar{y}+z$	M_2
0	1	1	$\bar{x}yz$	m_3	$x+\bar{y}+\bar{z}$	M_3
1	0	0	$x\bar{y}\bar{z}$	m_4	$\bar{x}+y+z$	M_4
1	0	1	$x\bar{y}z$	m_5	$\bar{x}+y+\bar{z}$	M_5
1	1	0	$xy\bar{z}$	m_6	$\bar{x}+\bar{y}+z$	M_6
1	1	1	xyz	m_7	$\bar{x}+\bar{y}+\bar{z}$	M_7

x	y	z	f	f
0	0	0	0	
0	0	1	1	$\leftarrow m_1$
0	1	0	0	
0	1	1	0	
1	0	0	1	$\leftarrow m_4$
1	0	1	0	
1	1	0	0	
1	1	1	1	$\leftarrow m_7$

$f = m_1 + m_4 + m_7$

$= \bar{x}\bar{y}z + x\bar{y}\bar{z} + xyz$

canonical sum of minterms
or
canonical sum of products

$f = M_0 \cdot M_2 \cdot M_3 \cdot M_5 \cdot M_6$

$= (x+y+z)(x+\bar{y}+z)(x+\bar{y}+\bar{z}) \cdot (\bar{x}+y+\bar{z})(\bar{x}+\bar{y}+z)$

canonical product of maxterms
or
canonical product of sums