1.

$F = x'yz' + w'y + wyz'$

Truth table

w	x	y	z	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	1	0
1	1	0	0	0
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

3.

A =	1	1	0	1	0	1	0	1
B =	0	1	1	1	0	0	0	1
(a) AND = (xy)	0	1	0	1	0	0	0	1
(b) XNOR = (xy+x'y')	0	1	0	1	1	0	1	1
(c) NOTA = (x')	0	0	1	0	1	0	1	0

4. $F = x'yz' + wy + wyz'$

sum-of-minterms

$\Rightarrow \Sigma(2,3,6,7,10,14)$

$= w'x'yz' + w'x'yz + w'xyz' + w'xyz + wx'yz' + wxyz'$ ✻

product-of-maxterm

$\Rightarrow \Pi(0,1,4,5,8,9,11,12,13,15)$

$= (w+x+y+z)(w+x+y+z')(w+x'+y+z)(w+x'+y+z')(w'+x+y+z)$

$\cdot (w'+x+y+z')(w'+x+y'+z')(w'+x'+y+z)(w'+x'+y+z')(w'+x'+y'+z')$ ✻