DLD Expression Theory

1)	$A + BC$	=	$(A + B)(A + C)$
2)	$A + \bar{A}C$	=	$A + C$
3)	$AB + BC + CA$	=	$AB + C(A + B) = AB + C(A \oplus B)$
4)	$\bar{A}B + BC + CA$	=	$\bar{A}B + CA$
5)	$A\bar{B} + BC + CA$	=	$A\bar{B} + BC$
6)	$\bar{A}B + \bar{B}C + CA$	=	$\bar{A}B + C$
7)	$\bar{A}B + \bar{B}C + \bar{C}A$	=	$(A \oplus B) + (B \oplus C)$

1) $\bar{A}B + BC + CA = \bar{A}B + CA + BC(A + \bar{A})$
$= \bar{A}B + CA + BCA + BC\bar{A}$
$= \bar{A}B + BC\bar{A} + CA + BCA = \bar{A}B(1 + C) + CA(1 + B)$
$= \bar{A}B + CA$

2) $\bar{W}.\overline{WXYZ} = \overline{W + WXYZ} = \overline{W(1 + XYZ)} = \bar{W}$

3) $A\ xor\ B = \overline{A\ xnor\ B} = \overline{AB + \bar{A}\bar{B}} = \overline{\overline{AB}} + \overline{\overline{\bar{A}\bar{B}}}$
$= \overline{\overline{\bar{A} + \bar{B}} + \overline{\bar{\bar{A}} + \bar{\bar{B}}}} = \overline{\overline{\bar{A} + \bar{B}} + \overline{A + B}}$