products -of- Sum (POS)

When two or more sum terms are multiple, the resulting expression is a product of sum (POS).

For example : $F = (A + B + C) \cdot (A + B + C)$

It can be obtained from the truth table by considering those input combinations that produce a logic '0' at the output

For example :
$F = (A + B+)$

A	B	C	Standard POS	F
0	0	0	$A + B + C$	0
0	0	1	$A + B + \overline{C}$	0
0	1	1	$A + \overline{B} + \overline{C}$	1
0	1	0	$A + \overline{B} + C$	0
1	0	0	$\overline{A} + \overline{B} + C$	1
1	0	1	$\overline{A} + \overline{B} + C$	1
1	1	0	$\overline{A} + \overline{B} + \overline{C}$	1
1	1	1	A + B + C	1

For example :

- $F = \overline{A}\, B\, C + \overline{A}\,\overline{B}\,\overline{C} + A\, B\,\overline{C}$

- $F = \overline{\overline{A}\, B\, C} + \overline{\overline{A}\,\overline{B}\,\overline{C}} + \overline{A\, B\, C}$

  $F = (\overline{\overline{A}\,\overline{B}\,\overline{C}})\,(\overline{\overline{A}\,B\,C})\,(\overline{A\,B\,C})$

- $F = (\overline{\overline{A}} + \overline{\overline{B}} + \overline{\overline{C}})\,(\overline{\overline{A}} + \overline{B} + \overline{\overline{C}})\,(\overline{A} + \overline{B} + \overline{\overline{C}})$

  - $F = (A + B + C)\,(A + \overline{B} + C)\,(\overline{A} + \overline{B} + C)$

A	B	C	F
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1