

## Important terms related to minimization of Boolean expression + K Maps

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|------------------|-------------------------|
| 1) Minterm       | 4) Canonical form       |
| 2) Maxterm       | 5) SOP (Sum Of Product) |
| 3) Cardinal form | 6) POS (Product Of Sum) |

Sl no	Terms	Explanation
1	minterm	Product of all the literals with or without the bar within the expression . Example $XY'Z'$
	Short hand minterm notation	<b>Example :</b> the short hand <b>minterm</b> designation of $xy'z'$ <b>Step 1 :</b> substitute 0's for barred letters and 1's for non barred letters , $xy'z'=100$ ,(Binary equivalent) <b>Step 2 :</b> Express decimal subscript of m <b>(lower case m)</b> = $m_4$
2	maxterm	Sum of all the literals with or without the bar within the expression. Example $X'+Y+Z'$
	Short hand maxterm notation	<b>Example :</b> the short hand <b>maxterm</b> designation of $x+y'+z'$ <b>Step 1 :</b> substitute 1's for barred letters and 0's for non barred letters , $xy'z'=011$ ,(Binary equivalent) <b>Step 2 :</b> Express decimal subscript of <b>M</b> <b>(Upper case M)</b> = $M_3$
3	Cardinal form	$F(X,Y,Z) = \Sigma(0,1,2,5)$ $F(W,X,Y,Z) = \Pi (0,3,6,8,10,12,14)$
4	Canonical form	$(X.Y.Z)+(X'+Y'+Z).....$ $(X+Y+Z') . (X'+Y+Z) . (X'+Y''+Z').....$ Boolean Expression composed entirely either of minterms or maxterms is referred to as Canonical Expression
5	SOP (Sum Of Product) Or Canonical SOP	When a boolean expression is represented purely as <b>Sum Of Minterms</b> , it is said to be in <b>Canonical Sum-Of-Products Form</b> <b>Example:</b> $(XYZ')+(XY'Z')+(X'YZ')$
6	POS (Product Of Sum) Or Canonical POS	When a boolean expression is represented purely as product of Maxterms , it is said to be in <b>Canonical Product-Of-Sum Form</b> <b>Example :</b> $(X+Y+Z')(X+Y'+Z')(X'+Y+Z')$