## Devoir 1

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## (a) Table de vérité

	Α	В	C	$\mid D \mid$	V
0	0	0	0	0	0
1	0	0	0	1	0
$\frac{1}{2}$	0	0	1	0	0
3	0	0	1	1	0
4	0	1	0	0	0
$\frac{4}{5}$	0	1	0	1	0
6	0	1	1	$\begin{bmatrix} 1 \\ 0 \\ 1 \\ 0 \\ 1 \\ 0 \end{bmatrix}$	1
7	0	1	1		0 0 0 1 1
6 7 8 9	1	0	0	0	0
	1	0	0	1	0
10	1	0	1	0	1 1
11	1	0	1	1	1
12	1	1	0	0	1
13	1	1	0	1 0 1 0 1 0 1 0	1
14	1	1	1	0	1
15	1	1	1	1	1

## (b) SOP de la fonction V

Initial Setup							
Minterm	A	В	С	D			
			_				
6	0	1	1	0			
10	1	0	1	0			
12	1	1	0	0			
7	0	1	1	1			
11	1	0	1	1			
13	1	1	0	1			
14	1	1	1	0			
15	1	1	1	1			

First Reduction							
Pair	A	В	С	D			
(6,7)	0	1	1	-			
(6,14)	-	1	1	0			
(10,11)	1	0	1	-			
(10,14)	1	-	1	0			
(12,13)	1	1	0	-			
(12,14)	1	1	-	0			
(7,15)	-	1	1	1			
(11,15)	1	-	1	1			
(13,15)	1	1	-	1			
(14,15)	1	1	1	-			

Second Reduction							
Quad	A	В	С	D			
(6,7,14,15)	1	-	1	-	*		
(10,11,14,15)	-	1	1	-	*		
(12, 13, 14, 15)	1	1	-	-	*		

	Minterms							
Prime Implicants	0110	0111	1010	1011	1100	1101	1110	1111
1-1-			✓	✓			✓	✓
-11-	✓	✓					✓	✓
11-					✓	<b>√</b>	✓	✓

$$V(A, B, C, D) = AC + BC + AB$$

## (c) Implementation





