

CSE - 206 (Online)

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$$f(P, Q, R, S) = \sum (1, 3, 7, 11, 15) + d(0, 2, 5)$$

$$= \bar{P}\bar{Q}\bar{R}S + \bar{P}\bar{Q}RS + \bar{P}QR\bar{S} + \bar{P}QRS + P\bar{Q}\bar{R}\bar{S}$$

$$+ \bar{P}QR\bar{S} + \bar{P}\bar{Q}R\bar{S} + \bar{P}Q\bar{R}\bar{S}$$

Truth Table:

P	Q	R	S	F
0	0	0	0	X
0	0	0	1	1
0	0	1	0	X
0	0	1	1	1
0	1	0	0	0
0	1	0	1	X
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

KMAP:

RS \ PQ	00	01	11	10
00	X	1	1	X
01		X	1	
11			1	
10			1	

$\bar{P}\bar{Q}$

Simplified Expression:

$$F = \bar{P}\bar{Q} + RS$$

# Empty cells are 0

~~$\bar{P}\bar{S}$~~

Circuit: Diagram

