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#Offline 3

1 bit full subtractor

P	Q	R	D	B
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

Here,

D = P-Q-R

P = Minuend

Q = Subtraend

R = Previous Borrow

D = Difference

B = Output borrow

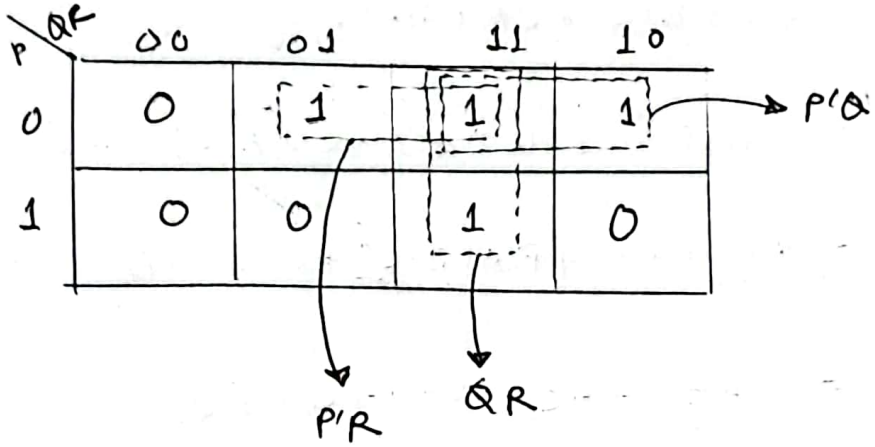
P \ QR	00	01	11	10
0	0	1	0	1
1	1	0	1	0

$D = PQ'R' + P'Q'R + PQR + P'QR'$

$= R'(PQ' + P'Q) + R(P'Q' + PQ)$

$= R'(P \oplus Q) + R(\overline{P \oplus Q})$

$= P \oplus Q \oplus R$



$\therefore B = P'Q + P'R + QR$