

Exclusive or gate (odd no. of 1's)

x	y	z	f
0	0	0	0
0	0	1	1
0	1	0	1
1	0	0	1
0	1	1	0
1	0	1	0
1	1	0	0
1	1	1	1

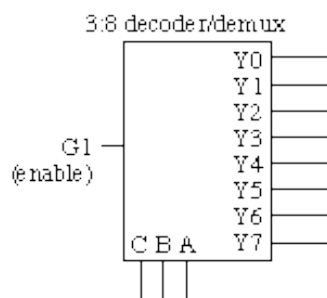
Equivalence gate (even no. of 0's)

x	y	z	f
0	0	0	0
0	0	1	1
0	1	0	1
1	0	0	1
0	1	1	0
1	0	1	0
1	1	0	0
1	1	1	1

And we see that Exclusive or gate & Equivalence gate are equal in this case.

So we can conclude that **Equivalence gate** can not be defined as compliment of **Exclusive or gate**.

Actually Equivalence gate is equal to the Exclusive or gate when we have odd number of input variables while Equivalence gate is compliment of Exclusive or gate when we have even number of input variables.



Functional Truth Table

Select			Outputs							
C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
0	0	0	G1	0	0	0	0	0	0	0
0	0	1	0	G1	0	0	0	0	0	0
0	1	0	0	0	G1	0	0	0	0	0
0	1	1	0	0	0	G1	0	0	0	0
1	0	0	0	0	0	0	G1	0	0	0
1	0	1	0	0	0	0	0	G1	0	0
1	1	0	0	0	0	0	0	0	G1	0
1	1	1	0	0	0	0	0	0	0	G1