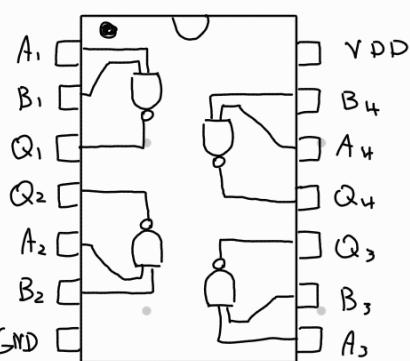


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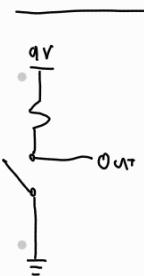
6 → 7480

CD4093/4011



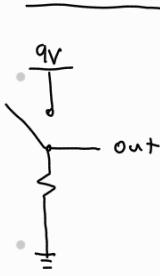
(switch)

Pull-up:

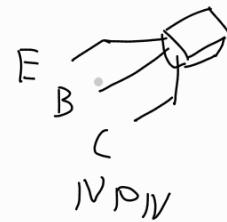
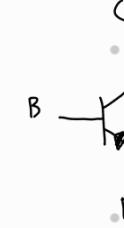
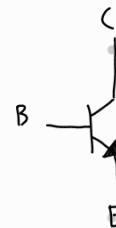


(switch)

Pull-down:



NPN: PNP:



\* OFF → logic low → must be to ground, not dangling.

Simplifij:

a)  $Y'X = Y'X$

b/c) 0.

d/e)  $Y'X' + Y'X$

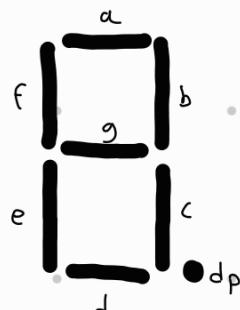
$Y'(X' + X) = Y'(1) = Y'$

F)  $Y'X'$

g)  $Y'X' + YX \dots$

$((Y'X' + YX)'')$

$((Y'X')'((YX)'))'$



Min terms

\* b/c = 0

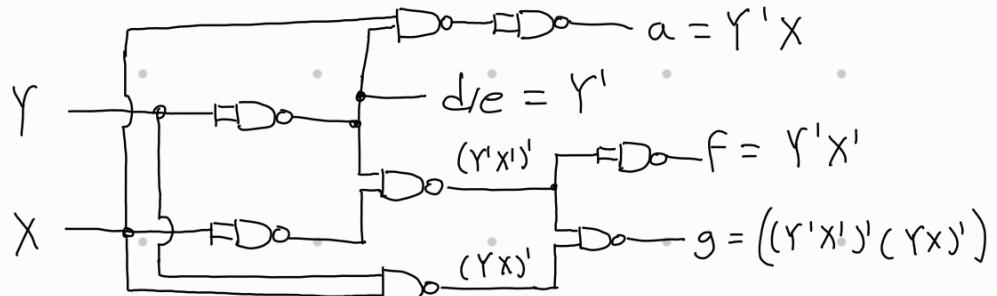
a:  $Y'X$

d/e:  $Y'X' + YX$

f:  $Y'X'$

g:  $YX'$

\* LED On with logic 0.



\* push button depressed → logic 0

format: push button return logic 1 when pressed:

NAND

0 0		1
0 1		1
1 0		1
1 1		0

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27/01/2026