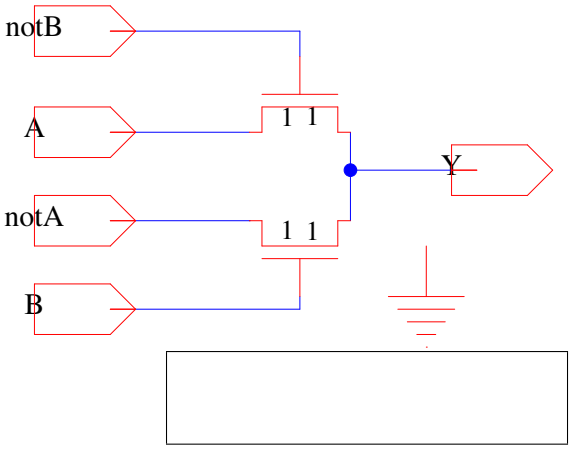
Assume V_{thn}=300mV and V_{dd}=1V.

1. Assuming notA=$\overline{A}$ notB=$\overline{B}$, and all 4 inputs driven by rail-to-rail CMOS inputs, what function does this circuit perform?

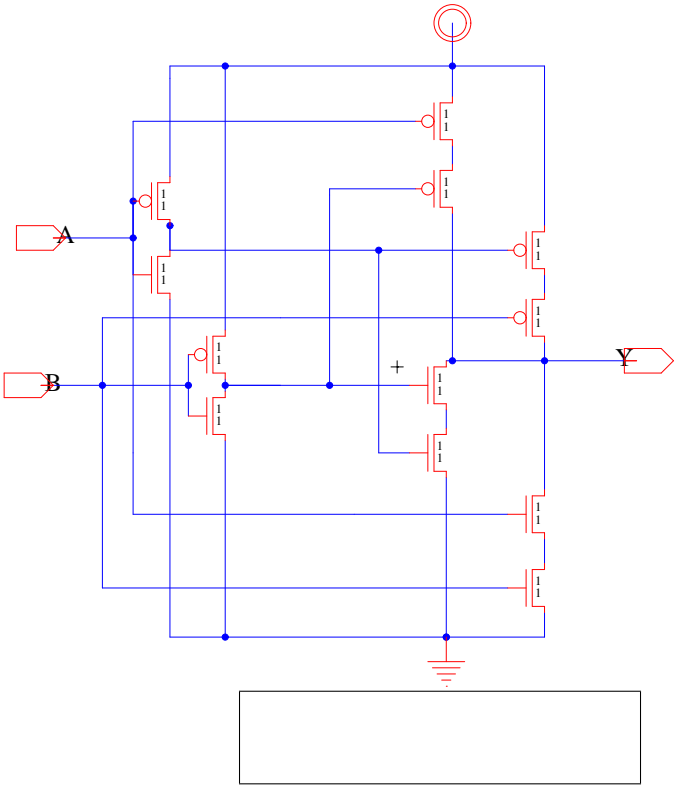


(ground terminal just used for NMOS body contacts)

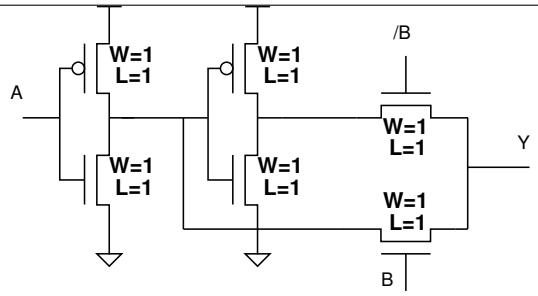
Hint: What is the truth table?

A	B	Y
0	0	
0	1	
1	0	
1	1	

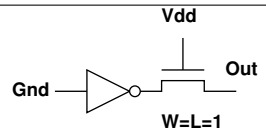
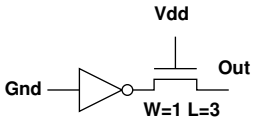
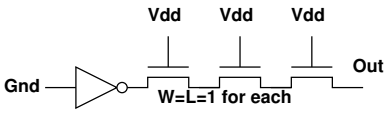
2. What function does this circuit perform?



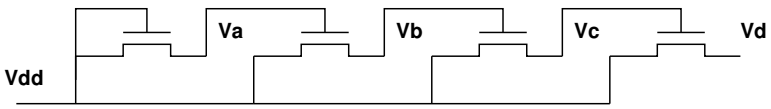
3. Assuming this circuit is loaded by an inverter (equivalently, the inverter input of another copy of this circuit), what is equivalent RC circuit on the output if A=1? ($C_{diff} > 0$)

Circuit	
	
B=0	
RC Circuit	Delay
B=1	
RC Circuit	Delay

4. What is the voltage at "Out" for each of the following? ($V_{thn} = -V_{thp}$ =300mV, V_{dd}=1V)

circuit			
voltage			

5. Assuming $V_{thn} = -V_{thp}$ =300mV, V_{dd}=1V, consider:



Va ____ Vb ____ Vc ____ Vd ____

6. What is the delay (time constant) associated with each of the following?

Circuit	Time Constant