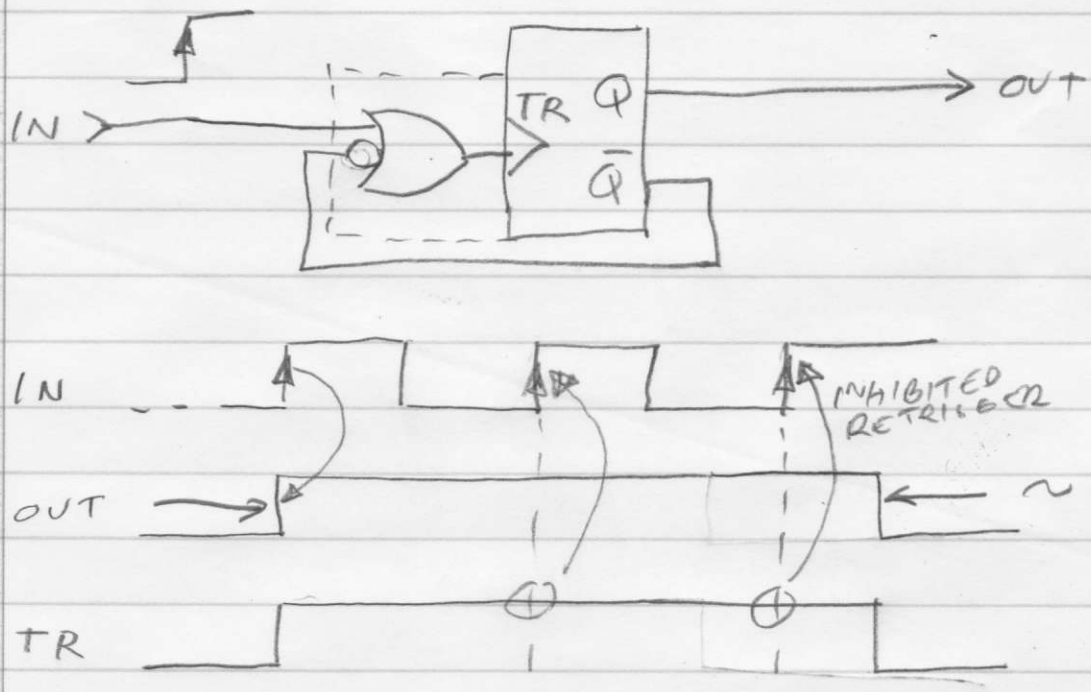
PHYS 335 - SPRING QUARTER 2013
HOMEWORK 3 SOLUTIONS V1.0

1. SEE H&H TEXT P. 513 AT UPPER LEFT.



2. LOOK AT A DATASHEET FOR THE OUTPUT PULSE WIDTH VS. TIMING CAPACITANCE. NOTICE AS $C \longrightarrow 0$, THE OUTPUT PULSE WIDTH APPROACHES A CONSTANT. THIS IS DUE TO THE "STRAY" CAPACITANCE AT THAT PIN. APPROXIMATELY, THE LIMITING PULSE WIDTH IS ~ 100ns.

FOR MORE FUN: FIGURE OUT THE VALUE OF THE "STRAY" CAPACITANCE AND ASK YOURSELF WHETHER THIS VALUE IS REASONABLE

3. AGAIN, LOOK AT A DATASHEET. NOTICE THERE'S AN INTERNAL 10KΩ RESISTOR. USING 10KΩ TIMING CURVES FROM THE DATASHEET AND EYEBALLING C → 0, THE PULSE-WIDTH IS AGAIN IN THE NEIGHBORHOOD OF 100nS.