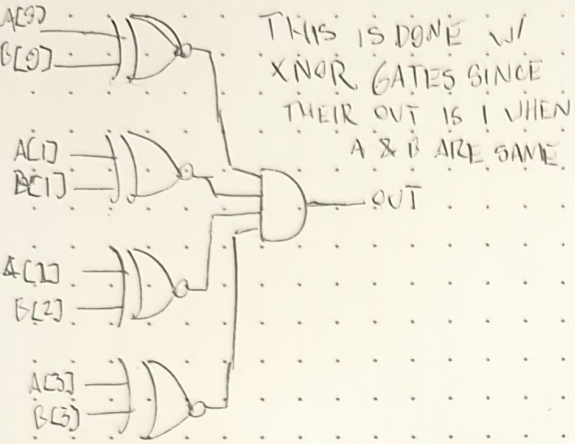
EQUAL COMPARATOR

COMPARE EACH BIT OF A & B. IF THEY'RE ALL THE SAME A=B



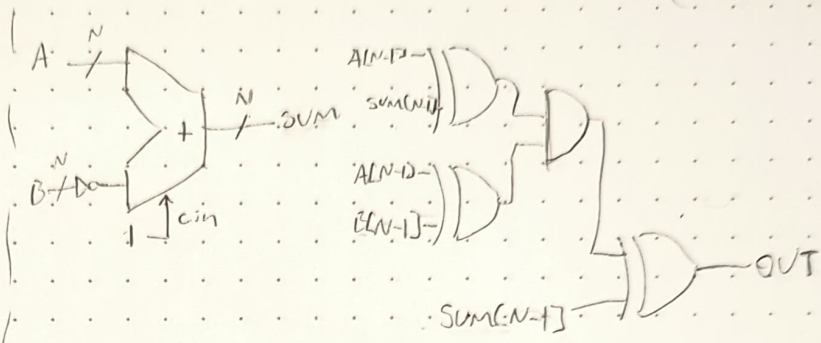
THIS IS DONE W/ XNOR GATES SINCE THEIR OUT IS 1 WHEN A & B ARE SAME

LESS THAN COMPARATOR

SUBTRACT A-B → IF RESULT <0, A<B.

↳ ADD A + B(-1) → TWOS COMP', -B = ~B+1

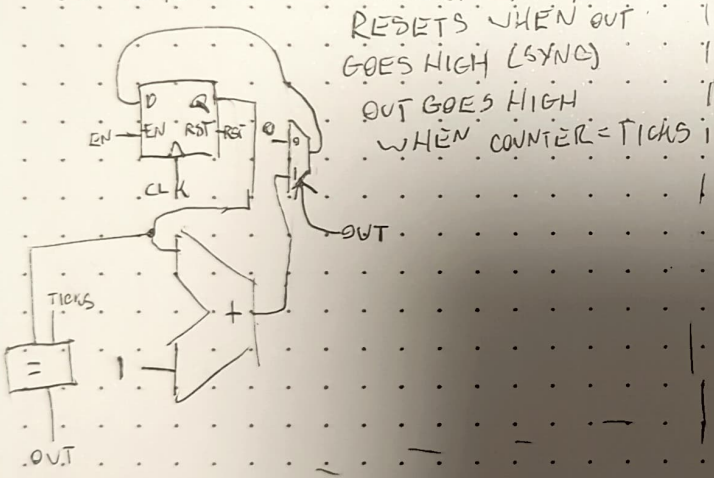
DEAL W/ OVERFLOW: OUT = MSB OF SUM ⊕ ((MSBA ⊕ MSBSUM) & (MSBA ⊕ MSBB))



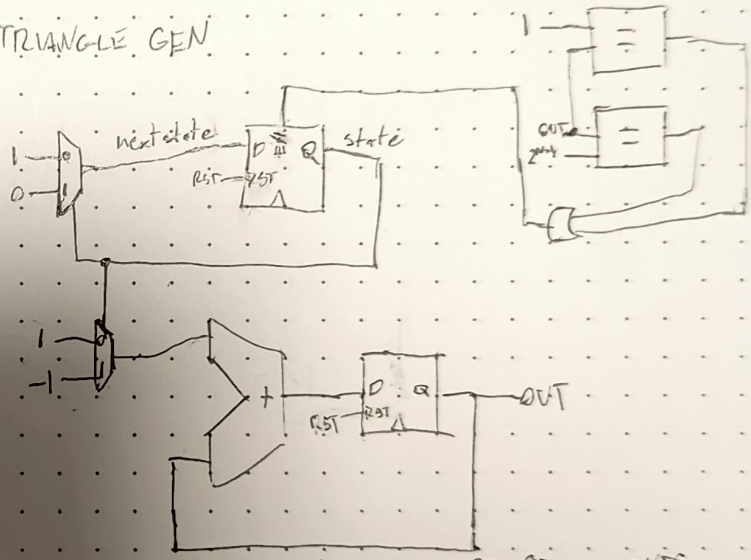
PULSE GEN

COUNTER INCREMENTS EVERY CYCLE, RESETS WHEN OUT GOES HIGH (SYNC)

OUT GOES HIGH WHEN COUNTER=TICKS

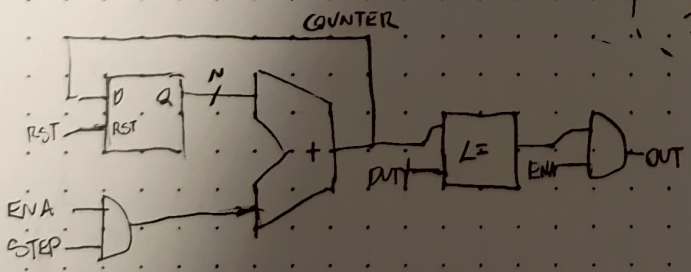


TRIANGLE GEN



COUNTER REGISTER INCREMENTS OR DECREMENTS ON CLK, ADDS +1 OR -1 DEPENDING ON MUX DRIVEN BY STATE REGISTER. STATE REGISTER SWITCHES STATE ON CLK EDGE ONLY WHEN OUT=1 OR 2^{N-1}.

PWM



OUTPUT ON WHEN COUNTER IS <= DUTY & ENABLED.
COUNTER IS OVERFLOWED TO RESET BC ANYTHING MORE COMPLICATED IS UNNECESSARY.