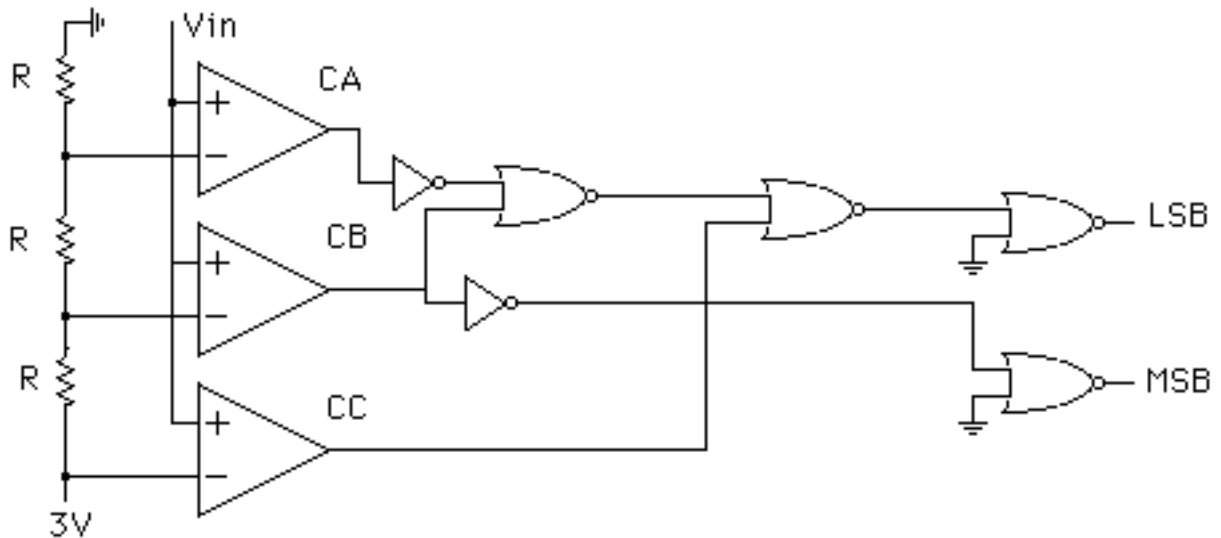


Physics 4700 HOMEWORK VII  
Due April 13

- 1) Simpson: problem 3, page 595.
- 2) Convert the following binary numbers to decimal:
  - a) 1110101.0110
  - b) 11.01010101...repeats
- 3) Simpson: problem 10, page 595.
- 4) Simpson: problem 12, page 596. Note: there is a typo in the circuit drawing for this problem. The  $D_2$  near  $D_1$  should read  $D_0$ .
- 5) Simpson: problem 4, page 665.
- 6) Simpson: problem 8, page 666.
- 7) The following circuit can be used to convert an input analog voltage to a digital output voltage.  $C_A$ ,  $C_B$ , and  $C_C$  are comparators which give a logic level 1 if the positive input (+) is greater than the negative input. The outputs, LSB and MSB stand for least significant bit and most significant bit respectively. Complete the following truth table. You will have a chance to build something similar to this in lab.

$V_{\text{input}}$	$C_A$	$C_B$	$C_C$	LSB	MSB
0.5 Volt					
1.5 V					
2.3 V					
4.0 V					



Extra Credit: 10 points each

- 1) Simpson: problem 10, page 666.
- 2) Simpson: problem 22, page 667.