

First Name: _____ Last Name: _____

1. Perform the following operations in binary. Assume signed 2's complement notation.

- $54 + 72$
- $54 - 72$
- $72 - 54$
- $(-72) - (-54)$

2. Decide the following ASCII code

100010 1101001 1101100 1101100 1000111 1100001 1110100 1100101 1110011

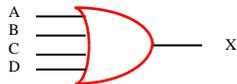
3. Convert 134_{10} to BCD code

4. By means of truth table and waveform determine the outputs of the circuit

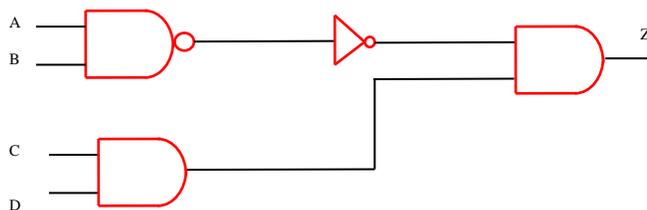
a.



b.



5. Write the Boolean expression of the following circuit:



6. For the circuit in Problem 5, by using a truth table, show that it is equivalent to a 4 input AND gate.

7. Draw the logic circuit realization of the following Boolean expression as stated. Do not simplify!

$$Y = f(A, B, C) = \overline{(A + B)} \overline{(B + C)}$$