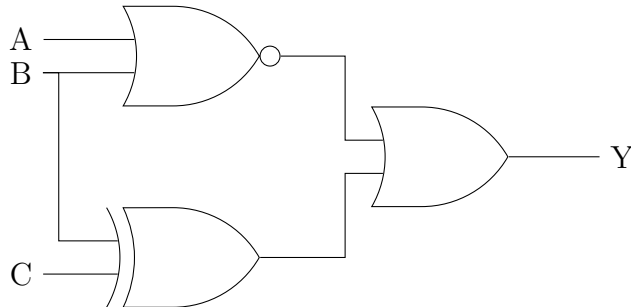


1. Examples handout questions 1-6.
2. Write the truth table for this circuit:



3. For the boolean logic operation:
 
$$F(A, B, C, D, E, F, G, H, I) = (A + B + C) \cdot (E + F + G) \cdot (G + H + I)$$
  - (a) Draw the circuit that implements this equation using only 3-input logic gates.
  - (b) Draw the circuit using only 2-input logic gates.
4. Consider a circuit that takes two 2-bit unsigned binary numbers as inputs ( $AB$  and  $CD$ , where  $A$  and  $C$  are most-significant bits) and outputs their product as a 4-bit unsigned number ( $WXYZ$ , where  $W$  is the most-significant bit).
  - (a) Write out the truth table for this circuit.
  - (b) Give a boolean expression for the above circuit in minimized sum-of-products form.
5. Give a boolean logic expression in DNF (sum-of-products) where the minimal representation is made up of the following:
  - (a) Four essential prime implicants of 4 literals.
  - (b) An essential prime implicant of 2 literals, and one of 4 literals.