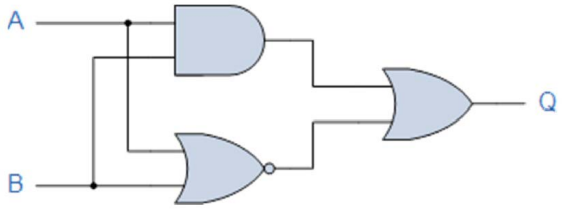
1. Construct a truth table from the following logic circuit diagram. The table should have two columns for the inputs and a column for the output.



2. From the previous problem, what single logic gate has an equivalent truth table?

3. Construct a truth table from the following Boolean expression, where + is OR and · is AND.

$$Q = (A + B) \cdot (\overline{C} \cdot A)$$

4. Design a logic circuit using SOP (sum of products) that will implement a window detector for a three-bit input such that the output is HIGH when the input is between 3 and 5 inclusive.

5. Design a logic circuit using POS (product of sums) that will implement a window detector for a three-bit input such that the output is HIGH when the input is between 2 and 6 inclusive.