Started by renaming some of the variables to make the levelFinder more reasonable. Created some test functions to make sure things would work as expected. Added an equals functions and a contains function. The equals returns true when two circuits are equal to each other in terms of name, truthTable and number of gates. Contains needs more work. It is supposed to take into account what happens when there is a minicircuit from beta inside alpha. If there is, you can share a wire instead of needing to remake the circuit.

There are two levelFinders

levelFinder makes the list of each level and then at the end makes a dictionary. Runs out of memory during the 6th level. Can make the first 5 levels without running out of memory but this only covers 202/256 of the values.

levelFinderV2 makes the dictionary as it makes the list. If there is a smaller thing in the dictionary already then it will throw out the circuit to save memory. There are some cases “01101100” where the first version gives the smaller value. In some cases, when going to 10 levels, there are some from v2 that are smaller than v1 going to 5. Note that the contains function still needs to be fixed.

Possibly thought of a way to count the number of gates. Might need to restructure the data to only have an ArrayList<ArrayList<String>> for the list of levels and HashMap<String, String> (mapping truthValues to circuits) instead of making circuit objects. Circuit objects would just be strings and I would need a method for determining the truthValues from the string and for determining the number of total gates used.

May need to use recursion to determine the number logic circuit.