Q. 5.

Prove NP, create certifier

Input A CNF ϕ, Truth assignments
for each variable.

Plug in given truth assignments
into ϕ, then check each clause
for an equal number of True and
False statements, if the fails, return false
otherwise continue to next clause.
If ϕ has been fully navigated, Return
true.

Now to show NP Complete
Reduce SAT to our problem
ϕ has n x variables

By statement has $x_n^{variables}$ in CNF ϕ
we can create n y variables that holds
the complement. $x_\phi = \overline{y_i}$

every instance of x is replaced by the
closure $(x_i \cup y_i)$