## In-Class Worksheet

## Discrete Math \& Functional Programming- CSCI 054- Spring 2024 Instructor: Osborn

For each expression below, write an equivalent one that is simpler.

```
a && not a
a || (not a && b)
(not a || b) && (not b || c) &&
    (not c || not a) && (not c || not b)
```

$1+1=2$ implies that $2+3=5$
$1+1=2$ implies that $2+3=6$
$1+1=3$ implies that $2+3=5$
$1+1=3$ implies that $2+3=6$

A password is valid only if it is at least 8 characters long, is not one that you have used previously, and contains at least 2 of the following: a number, a lowercase character, an uppercase character.

Is the following statement a tautology? a contradiction? satisfiable? falsifiable?

$$
p \vee q \Rightarrow \neg p \wedge \neg q
$$

