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

1. \( a \land \neg a \)  
2. \( a \lor (\neg a \land b) \)  
3. \((\neg a \lor b) \land (\neg b \lor c) \land (\neg c \lor \neg a) \land (\neg c \lor \neg b)\)

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?

\[ p \lor q \Rightarrow \neg p \land \neg q \]