Sarah Cabovic Homework 6 10/4/2021

1. The first four postulates is what is considered neutral geometry, meaning that it could be applied in other areas which are not Euclidean based geometry. If the fifth postulate can be proved using the other axioms, it could be considered part of neutral geometry, meaning that it would be applicable in non-Euclidean geometry. However, it is not applicable, so the fifth postulate could not have been proving using the other axioms.

2.

2. He assigns number assignments to different statements that are true, and since there are many numbers, you still have unassigned numbers which could possibly correspond to a theorem which could be proven.

3. With Godel's theorem, he assumes that there are infinitely many math statements, but just as the Turing machine it has a certain end point, so there cannot be infinitely many statements.

4. (i) Two people, A and B (T → telling the truth, F → telling a lie)
A: B is a liar (A,B) = (T, F)
B: A is a liar (A,B) = (F, F)

(ii) A: B is a knight/liar (A,B) = (F, T)
B: A is a liar (A,B) = (T, F)

(iii) A: B is a liar (A,B,C) = (T, T, T),
B: C is a liar (A,B,C) = (F, F, F)
C: A is a liar

(iv) A: B is a liar
B: C is a liar (A,B,C,D) = (T, T, T, T)
C: D is a liar (A,B,C,D) = (F, F, F, F)
D: A is a liar