8 TGR homeworks — November 21st, 2018

8.1 Prove or disprove:

Let G be a connected undirected graph of even number of vertices and such that it does not contain $K_{1,3}$ as an induced subraph. Then G has a perfect matching.

8.2 Prove or disprove:

Every tree has at most one perfect matching.

8.3 Let G be a simlpe 3-regular graph withou loops (3-regular means that every vertex in G has degree 3).

Prove or disprove:

If G does not contain a bridge then in G there is a perfect matching.

Hint: The Tutte's theorem can be used.