1. Repetition: connected components and other definitions

2. Theorem:# connected components $\geqslant |V| - |E|$

3. Definition of a tree: a connected graph with no cycles (as subgraphs)

4. Theorem: A graph G is a tree if and only if

   (a) it is connected and deleting any edge results in a disconnected graph
   (b) it is connected and $|E| = |V| - 1$
   (c) there is exactly one path between each pair of vertices

5. Lemma (**[1]**:Theorem 8.2.1) Every tree with at least two nodes has at least two nodes of degree 1.

6. k-colorability

7. Theorem: A graph is 2-colorable if and only if it contains no odd cycle.

References
  The books are listed on the wiki-page.

[1]: Sections 8.1, Theorem 8.2.1, Theorem 13.2.1

[2] Chapter 6

[3]: Sections 3.2.5, 3.5.2

[4]: Sections 3.1, 3.2.1-3.2.3,

Keywords (that have not been aforementioned)

- *incident*: u incident with an edge $\{u, v\}$.

- *external vertex* (of a tree) is a vertex of degree 1

- *internal vertex* (of a tree) is a vertex that is not external

- *isolated vertex* is a vertex of degree 0