Pretend Quiz 12

This quiz is not graded. It is for practice purposes only.

1. Prove that, for any $n > 1$, the "star graphs" $\mathcal{G}_n$ (defined recursively on the practice exam) are connected.

2. Are there any graphs with degree sequence

$$2, 2, 2$$

that are disconnected? Are there any graphs with degree sequence

$$2, 2, 2, 2, 2, 2$$

that are disconnected? What can you say about the relationship between "degree sequence" and "connectedness"?

3. Give an example of a bipartite graph that is not Eulerian. Give an example of a bipartite graph that has a Eulerian trial but is not Eulerian.

4. Consider the graph $\mathcal{G}_n$ defined recursively on the Exam 2, except with the change that

$$G_1 = (\{a, b\}, \{\}).$$

Is the conclusion of the exam problem (part (a) and (b)) still true?

5. Let

$$\mathcal{G} = (\{a, b, c, d\}, \{bc\}).$$

Enumerate models for all the subgraphs of $\mathcal{G}$ and give models for all the isomorphism classes of subgraphs of $\mathcal{G}$.