

Answer the questions in the space provided below. You may use the back of the page if you need more space. Time: 15 minutes.

Name and section: _____

1. Determine whether each of the following statements is true or false (you do not have to provide proofs):
 - (a) In a disconnected graph with 10 vertices, adding 10 edges to it always results in a connected graph. (20)
 - (b) In every connected graph there are no vertices with degree 0. (20)
 - (c) In a connected graph with 10 vertices the length of the shortest path between any two vertices is at most 10. (20)
2. Let G be a non-empty and disconnected graph. Let v be a vertex of G . Prove or disprove the following statement: $G - v$ is a disconnected graph. (40)