Worksheet 20 Solution

Hyungmo Gu

April 14, 2020

Question 1

a. **Pseudoproof:**

Let $V = \{1, 2, 3, 4, 5, 6\}$, $E = \{(1, 2), (1, 6), (2, 3), (3, 4), (4, 5), (5, 6)\}$).

We need to prove the graph $G = (V, E)$ is bipartite by proving the following properties:

1. There exists subsets $V_1, V_2 \subset V$ such that $V_1 \neq \emptyset, V_2 \neq \emptyset$, and V_1 and V_2 form a partition of V.
2. Every edge in E has exactly one endpoint in V_1 and one in V_2.

We will prove the properties in parts.

1. Show there exists subsets $V_1, V_2 \subset V$ such that $V_1 \neq \emptyset, V_2 \neq \emptyset$, and V_1 and V_2 form a partition of V
2. Show every edge in E has exactly one endpoint in V_1 and one in V_2.