1. In the space provided below draw an example of a graph that has a Hamiltonian circuit, but does not have an Euler circuit, and an example of a graph that has an Euler circuit but does not have a Hamiltonian circuit.

<table>
<thead>
<tr>
<th>HC but no EC</th>
<th>EC but no HC</th>
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</table>

2. Use Kruskal’s Algorithm to find the minimum-cost spanning tree in the graph below:

![Graph with weights](image)

3. Use Brook’s Theorem to find an upper bound for the chromatic number of the following graph. Then, find the chromatic number and explain why it cannot be any smaller.

![Graph with weights](image)