There are 10 problems, each worth 10 points. There are 6 pages

Problem 1: Justify your answers. If \( G \) is a graph, then

\( \chi(G) \) is the chromatic number of \( G \) and

\( P(G, x) \) is the chromatic polynomial of \( G \).

1. Consider the map

![Map Diagram]

2. Draw the graph \( G \) which represents this map.

3. What is \( \chi(G) \)?

2. Find \( P(G, x) \) for the graph.

![Graph Diagram]

3. Find \( P(G, x) \) for the graph.

![Graph Diagram]