MTH 4140 Graph Theory

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Homework 4

Introduction to Graph Theory

Chapter 4 Connectivity and Paths

Section 4.1 Cuts and Connectivity

Problem 1. Excercise 4.1.1

Solution. (a) The statement is true. We know that a graph G is k-connected if its vertex connectivity is at least k. If a graph G is 2-connected then its vertex connectivity is at least 2. Given G has vertex connectivity 4 so we have $\kappa(G) = 4 \geq 2$ which is true. Every graph with vertex connectivity 4 is 2-connected. (b) The statement is false. (c) The statement is true. (d) The statement is false. ■

Chapter 5 Coloring of Graphs

Section 5.1 Vertex Coloring and Upper Bounds

Section 5.2 Structure of k-chromatic Graphs

Section 5.3 Enumerative Aspects