# MTH 4140 Graph Theory

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## Homework 3

## Introduction to Graph Theory

### Chapter 2 Trees and Distances

**Section 2.2 Spanning Trees and Enumeration**

**Section 2.3 Optimization and Trees**

**Problem 1.** Exercise 2.3.8

*Solution.* We run Kruskal's algorithm to get a minimum spanning tree (MST) of the graph built from the given adjacency matrix. The total weight of the MST is

$$3 + 3 + 7 + 8 = 21$$

The least cost of making all the cities reachable from each other is 21. ∎

### Chapter 3 Matchings and Factors

**Section 3.1 Matchings and Covers**