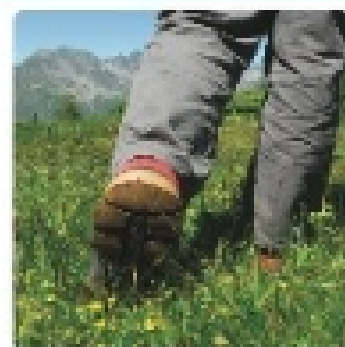


excursions in
**Modern
Mathematics**



Peter Tannenbaum

seventh edition

5 The Mathematics of Getting

5.1 Euler Circuit Problems

5.2 What Is a Graph?

5.3 Graph Concepts and Terminology

5.4 Graph Models

5.5 Euler's Theorems

5.6 Fleury's Algorithm

5.7 Eulerizing Graphs

Euler's Theorems

In this section we are going to develop the basic theory that will allow us to determine if a graph has an Euler circuit, an Euler path, or neither. This is important because, as we saw in the previous section, what are Euler circuit or Euler path questions in theory are real-life routing questions in practice. The three theorems we are going to see next (all thanks to Euler) are surprisingly simple and yet tremendously useful.