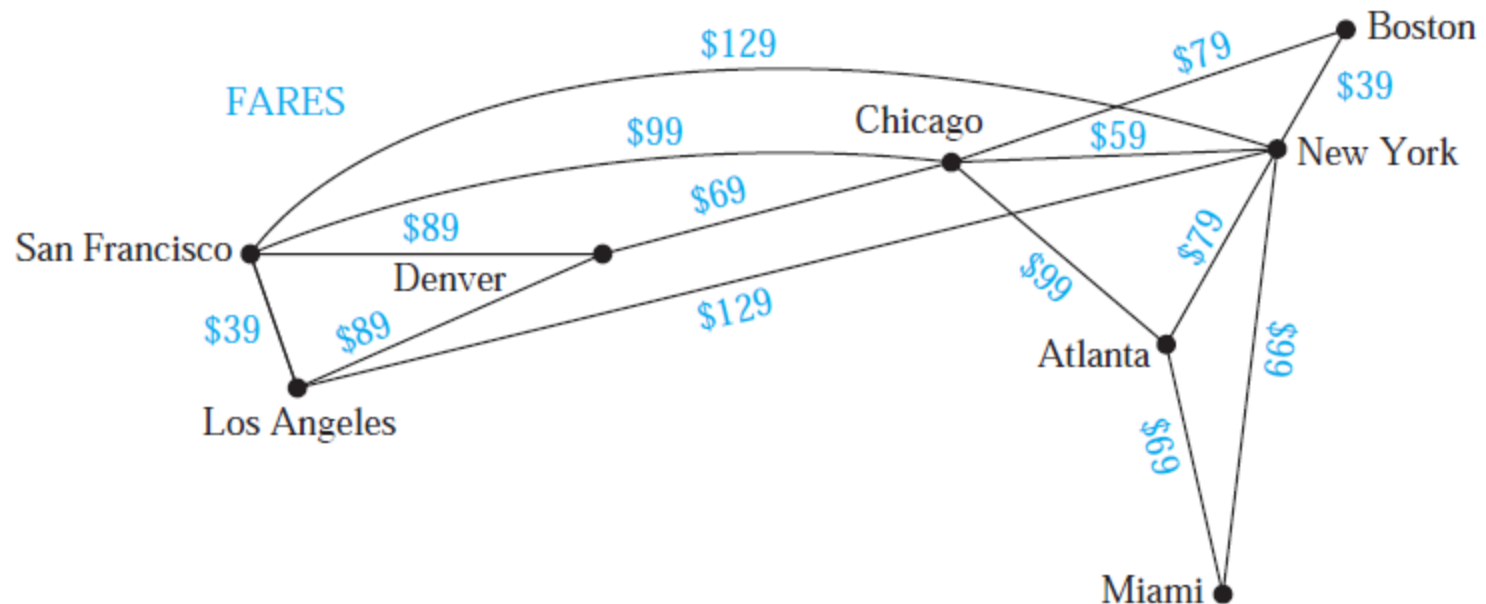# Mathematical concepts for computer science
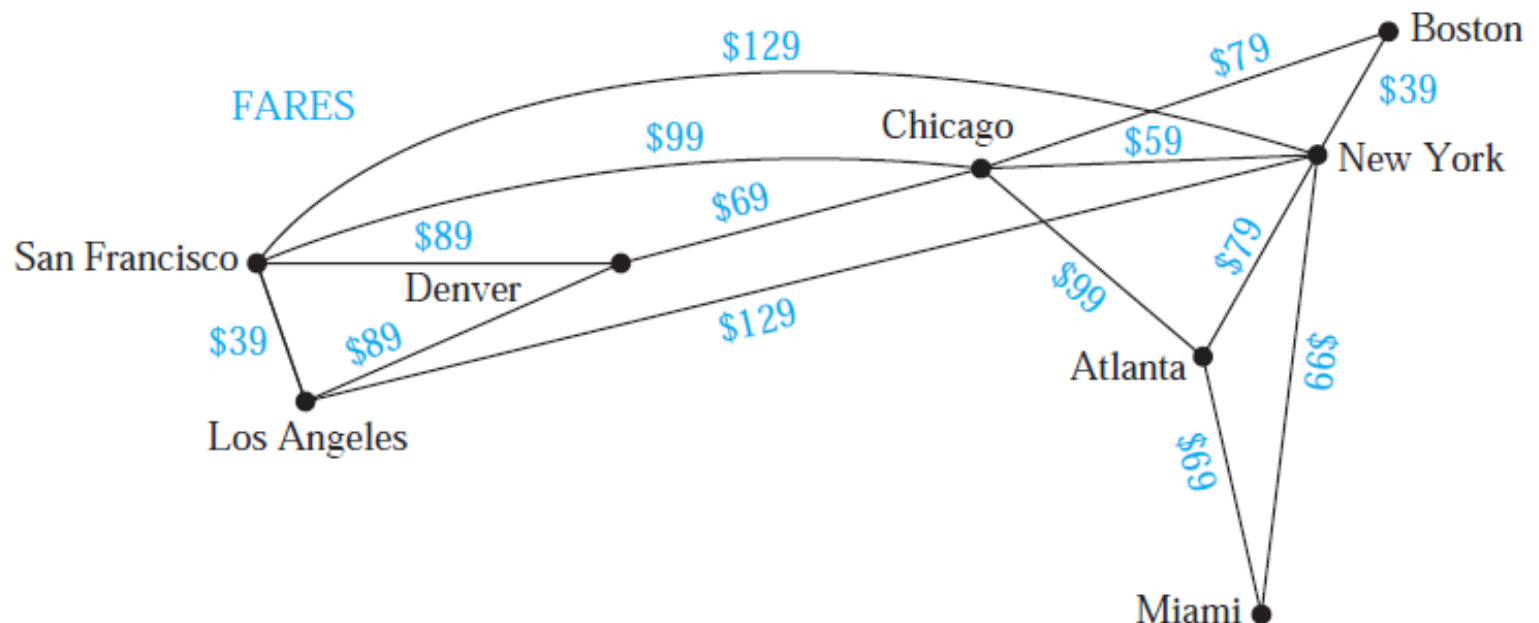
Shortest-Path Problems

- Graphs that have a number assigned to each edge are called **weighted graphs.**
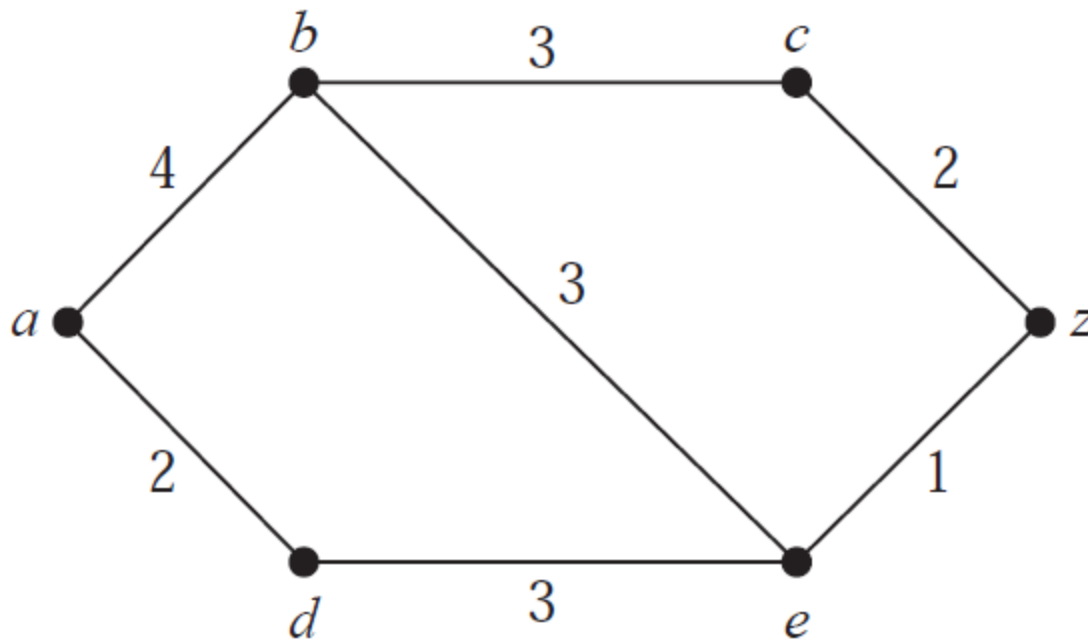
Shortest-Path Problems

- In graph theory, the **shortest path problem** is the problem of finding a path between two vertices (or nodes) in a graph such that the sum of the weights of its constituent edges is minimized.

A Shortest-Path Algorithm

- **What is the length of a shortest path between a and z in the weighted graph shown in Figure?**

Reference

- **Rosen, Kenneth H., and Kamala Krithivasan. Discrete mathematics and its applications: with combinatorics and graph theory. Tata McGraw-Hill Education, 2016.**