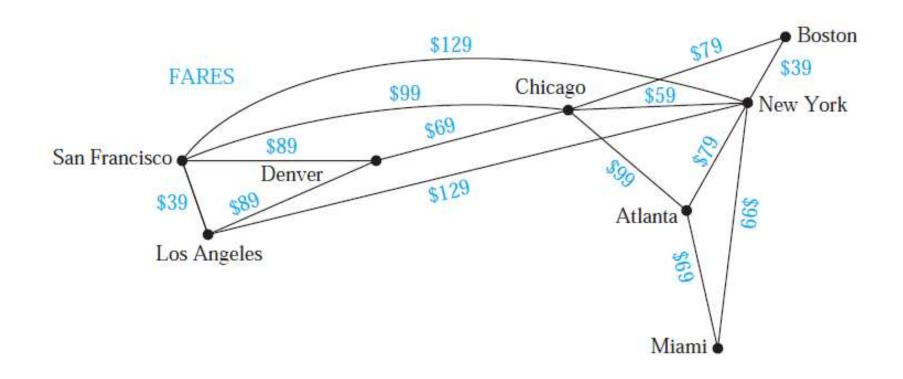
Mathematical concepts for computer science

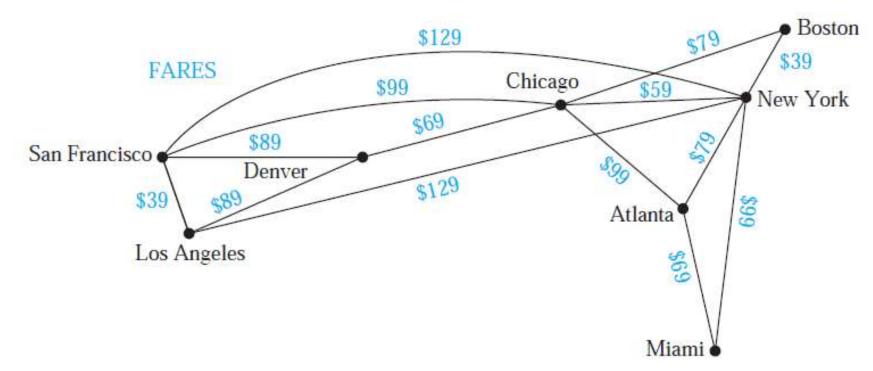
Shortest-Path Problems

• Graphs that have a number assigned to each edge are called weighted graphs.



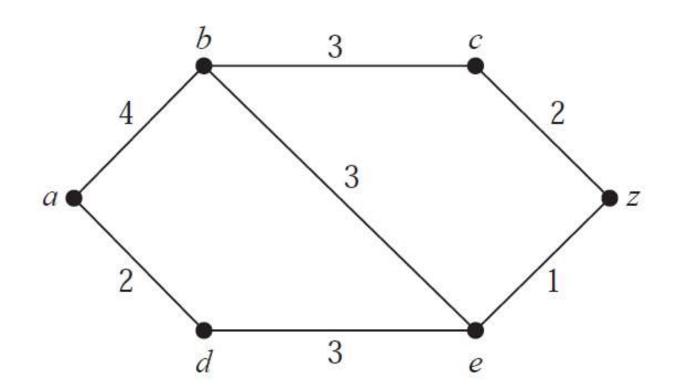
Shortest-Path Problems

 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.