

10. A salesperson in Boston has to make a sales trip to 8 cities and return to Boston. If all flights are made on one airline, the salesperson's frequent-flyer mileage will be increased a maximum amount. The table shows which places the airline reaches from each city, indicated by an "X." Make a graph from this information, and decide whether or not only the one airline can be used.

	Boston	Albany	Newark	Buffalo	Pittsburgh	D.C.	Raleigh	Charlotte	Memphis
Boston		X	X		X	X	X		
Albany	X		X	X		X			
Newark	X	X			X	X	X	X	
Buffalo		X			X	X			
Pittsburgh	X		X	X			X		X
Washington D.C.	X	X	X	X			X	X	
Raleigh	X		X		X	X		X	
Charlotte			X			X	X		X
Memphis					X			X	

11. There are many real-life problems like the traveling salesperson problem. For example, the telephone company must decide on the most efficient route for a worker to collect the money from public telephones. Give another example.

Minimizing the Cost of a Network

The graph at the left below gives the costs, in thousands of dollars, of joining several locations with roads. The total cost of all fourteen roads is \$179,000. For far less money, just the roads shown at the right below could be built, and people could still get from any location to any other. The cost of this network is \$72,000, the sum of the costs for the seven roads. Can you find another network of roads that includes every location and costs less than this?

