MATH 225

As part of a new job, you must travel to the eight cities shown in the following mileage chart.

	Boston	Dallas	Fargo	Houston	Louisville	Nashville	Pittsburgh	St. Louis
Boston	*	1748	1652	1804	941	1088	561	1141
Dallas	1748	*	1091	243	819	660	1204	630
Fargo	1652	1091	*	1304	940	1112	1129	850
Houston	1804	243	1304	*	928	769	1313	779
Louisville	941	819	940	928	*	168	388	263
Nashville	1088	660	1112	769	168	*	553	299
Pittsburgh	561	1204	1129	1313	388	553	*	588
St. Louis	1141	630	850	779	263	299	588	*

Mileage Chart

- 1. How many distinct Hamilton circuits are there for the weighted graph associated with this mileage chart? (A circuit traveled backward is not to be considered distinct from the original circuit.)
- 2. If it takes you three minutes to check each Hamilton circuit, how long will it take you to check all of the distinct Hamilton circuits in this problem? (Use an appropriate unit of time.)
- 3 a) Apply the cheapest-link algorithm to find a Hamilton circuit in the graph. Write each edge in the order selected.
 - b) Write the circuit as you would travel it starting from your home in Fargo.
 - c) What is the total mileage for the trip?
- 4. a) Apply the nearest-neighbor algorithm with Fargo as the starting vertex to find a Hamilton circuit in the graph.
 - b) Write the circuit as you would travel it starting from your home in Fargo.
 - c) What is the total mileage for the trip?
- 5. a) Apply the nearest-neighbor algorithm with Nashville as the starting vertex to find a Hamilton circuit in the graph.
 - b) Write the circuit as you would travel it starting from your home in Fargo.
 - c) What is the total mileage for the trip?