Discrete Math: 6.7 Repetitive Nearest Neighbor Algorithm
Date:

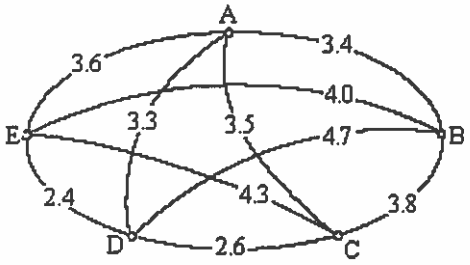
Name:
Period:

key

The Repetitive Nearest Neighbor Algorithm:

1. Start at any vertex X and find nearest neighbor tour
2. Repeat with all other vertices
3. Choose the one w/ least cost and rewrite w/ the desired starting vertex.

1. For the weighted graph , find the repetitive nearest neightbor tour. Write the tour using B as the starting vertex.



BADECB = 17.2

ADEBCA = 17

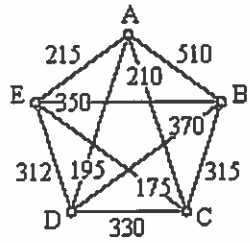
→ CDEABC = 15.8

→ DEABCD = 15.8

EDCABE = 15.9

BCDEAB

2. A rock band is planning a five-city concert tour. The cities and the distances (in miles) between them are given in the weighted graph. The tour must start and end at A. The cost of the chartered bus the band is traveling in in $5 per mile. Find the repetitive nearest neightbor tour, and give the bus cost for this tour.



ADECBA = 1507

BCEADB = 1270

CEADBC = 1270

DACEBD = 1300

ECADBE = 1300

ADBCEA → 1270 miles

× 5

$6350

3. Darren is a sales representative whose territory consists of the six cities in the mileage chart. Darren wants to visit customers at each of the cities, starting and ending his trip in his home city of Atlanta. His travel costs (gas, insurance, etc.) average $0.75 per mile. Find the nearest neighbor tour and give the cost for this tour.

Mileage Chart

	Atlanta	Columbus	Kansas City	Minneapolis	Pierre	Tulsa
Atlanta	*	533	798	1068	1361	772
Columbus	533	*	656	713	1071	802
Kansas City	798	656	*	447	592	248
Minneapolis	1068	713	447	*	394	695
Pierre	1361	1071	592	394	*	760
Tulsa	772	802	248	695	760	*

Atlanta → Columbus → K.C → Tulsa → Minn → Piere → ATL

$2915.25