MATH 371

OPERATIONS RESEARCH

Chapter 8 - The Transportation Algorithm
Problem 8.11

PROBLEM STATEMENT

A regional airline can buy its jet fuel from any one of three vendors. The airline's needs for the upcoming month at each of the three airports it serves are 100,000 gallons at airport 1, 180,000 gallons at airport 2, and 350,000 gallons at airport 3. Each vendor can supply fuel to each airport at a price (in cents per gallon) given by the schedule below. Each vendor, however, is limited in the total number of gallons it can provide during any one month. These capacities are 320,000 gallons for vendor 1, 270,000 gallons for vendor 2, and 190,000 gallons for vendor 3. Determine a purchasing policy that will supply the airline's requirements at each airport at minimum total cost.

	Airport 1	Airport 2	Airport 3	Vendor capacity
Vendor 1	92	89	90	320,000
Vendor 2	91	91	95	270,000
Vendor 3	87	90	92	190,000
Airline demand	100,000	180,000	350,000	

TABLEAU

	I	II	III	Dummy	Supply	u_i
A	92	89	90	0	320,000	
B	91	91	95	0	270,000	
C	87	90	92	0	190,000	
Demand	100,000	180,000	350,000	150,000		
v_j						