

## APPLICATIONS OF THE TRAVELING SALESMAN PROBLEM



author

This Hypercard stack was prepared by:  
Dennis L. Bricker,  
Dept. of Industrial Engineering,  
University of Iowa,  
Iowa City, Iowa 52242  
e-mail: dennis-bricker@uiowa.edu

Each day, SUNCO manufactures four types of gasoline:

- lead-free premium (LFP)
- lead-free regular (LFR)
- leaded premium (LP)
- leaded regular (LR)

©Dennis Bricker, U. of Iowa, 1997

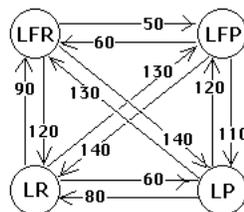
Because of cleaning and resetting of the processing equipment, the time required to produce a batch of gasoline depends on the type last produced:

LAST-PRODUCED GASOLINE	GAS TO BE NEXT PRODUCED			
	LFR	LFP	LR	LP
LFR	--	50	120	140
LFP	60	--	140	110
LR	90	130	--	60
LP	130	120	80	--

*In which order should the gasolines be produced each day?*

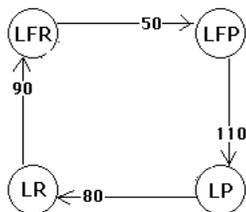
©Dennis Bricker, U. of Iowa, 1997

Consider a tour of the nodes in the network:



©Dennis Bricker, U. of Iowa, 1997

For example, if the order of the production is as shown:

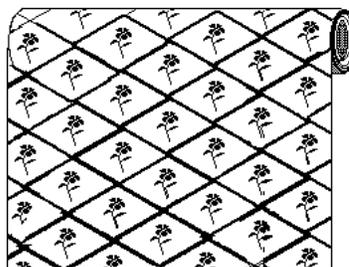


then the total production time will be  
 $50 + 110 + 80 + 90 = 330$  minutes

The best order will be that of the shortest "salesman's" tour!

©Dennis Bricker, U. of Iowa, 1997

### WALLPAPER CUTTING



©Dennis Bricker, U. of Iowa, 1997