

Assignment

Question 1

A candidate for mayor in a small town has allocated \$40,000 for last-minute advertising in the days preceding the election. Two types of ads will be used: radio and television. Each radio ad costs \$200 and reaches an estimated 3,000 people. Each television ad costs \$500 and reaches an estimated 7,000 people. In planning the advertising campaign, the campaign manager would like to reach as many people as possible, but she has stipulated that at least 10 ads of each type must be used. Also, the number of radio ads must be at least as great as the number of television ads. How many ads of each type should be used? How many people will this reach?

Question 2

The Weinberger Electronics Corporation manufactures four highly technical products that it supplies to aerospace firms that hold NASA contracts. Each of the products must pass through the following departments before being shipped: wiring, drilling, assembly, and inspection. The time requirement in hours for each unit produced and its corresponding profit value are summarized in the following table:

PRODUCT	DEPARTMENT				UNIT PROFIT (\$)
	WIRING	DRILLING	ASSEMBLY	INSPECTION	
XJ201	0.5	0.3	0.2	0.5	9
XM897	1.5	1	4	1	12
TR29	1.5	2	1	0.5	15
BR788	1	3	2	0.5	11

The production available in each department each month and the minimum monthly production requirement to fulfill contracts are as follows:

DEPARTMENT	CAPACITY (HOURS)	MINIMUM PRODUCTION LEVEL	
		PRODUCT	
Wiring	15,000	XJ201	150
Drilling	17,000	XM897	100
Assembly	26,000	TR29	300
Inspection	12,000	BR788	400

The production manager has the responsibility of specifying production levels for each product for the coming month. Help him by formulating (that is, setting up the constraints and objective function) Weinberger's problem using LP.