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ISDS 415

Linear Programming Homework

1. a) What is the linear programming model for this problem?

The linear programming model for this problem is maximization. We were interested in maximizing profits based on a few constraints.

b) How many of each model should Kelson manufacture?

Based on the Excel Solver solution, Kelson should manufacture 500 regular gloves and 150 catcher's gloves.

2. a) Objective: The Sea Wharf Restaurant would like to maximize total audience exposure.

Constraints: Monthly budget of $1,000 distributed between newspaper and radio advertising

At least 25% of the budget must be spent on each type of media.

Amount spent on newspaper advertising must be at least twice spent on radio.

Define decision variables:

R = amount spent on radio advertising

N = amount spent on newspaper advertising

In terms of variables:

$$\text{Max} = 50N + 80R$$

$$R + N = \$1{,}000$$

$$R \geq \$250,\ N \geq \$250$$

$$N \geq 2R$$

b) Amount spent on radio advertisements: $333.33

Amount spent on newspaper advertisements: $666.67

Value of Audience Exposure: 60,000