Example, Section 3.8 (Blending)

(Exercise 7, p. 93)

Eli Daisy uses two chemicals (1 and 2) to produce two drugs (1 and 2). Drug 1 must be at least 70% chemical 1 and drug 2 must be at least 60% chemical 2. Up to 40 oz. of drug 1 can be sold at $6 per oz; up to 30 oz of drug 2 can be sold at $5 per oz. Up to 45 oz of chemical 1 can be purchased at $6 per oz, and up to 40 oz of chemical 2 can be purchased at $4 per oz. Formulate an LP that can be used to maximize Daisy's profits.

Example 2

(Exercise 5, p. 93)

Chandler Oil Company has 5,000 barrels of oil type 1, and 10,000 barrels of type 2 oil. The company sells two products: Gasoline and heating oil. Both products are produced by combining oil 1 and 2. The quality level of each oil is as follows: oil 1 - 10; Oil 2 - 5. Gasoline must have an average quality level of at least 8, and heating oil at least 6. Demand for each product must be created by advertising. Each dollar spent advertising gasoline creates 5 barrels of demand, and each spent on heating oil creates 10 barrels of demand. Gasoline is sold for $25 per barrel and heating oil for $20 barrel. Formulate an LP to help Chandler maximize profit. Assume that no oil of either type can be purchased.