Classify each of the following situations as decision making under conditions of certainty, risk or uncertainty. Explain your answer.

A. A farmer from must decide how many acres of land he should use to allocate corn, and how many - for soy.

B. When the weather is hot there is a great demand for ice cream at the baseball stadium and sausages are sold much worse. In cold weather, things are changing. Sanitary rules do not allow you to store ice cream or sausages for more  than two days. Due to the large volume of orders suppliers require sellers to apply for the products not later than within seven days, otherwise they do not guarantee delivery. Determine how much ice cream and sausages should be ordered from the organizer of the trade for a big game next week.

C. Standard of quality of the pet food stipulates the minimum amount of proteins, fats and carbohydrates and the maximum amount of ballast components of the final mixture. There are three main components to produce feed mixtures with different proportions of proteins, fats and carbohydrates. The price of the components is different. Manufacturer of feed mixtures wants to satisfy the requirements of the standard at minimum cost. Determine the appropriate proportions of the main components of the mixture.

Determine the output and price that maximize profit and revenue of the monopolist, as well as the maximum profit if the total cost function has the form:

$TC = 200 + 60Q + 1{,}5Q^2$.

The demand function for the products of monopoly:

$Q = 240 - 2P$.

Why Q is not the same as when finding the maximum profit and maximum revenue?

The demand function for the products of monopoly $Q = 110 - 0,5 \times P$ and the total cost function $TC = 1500 + 40 \text{ x } Q + Q^2$.

Find the volume of the production for maximum profit.

A monopoly with cost function $TC = 40 + 10Q + 0.25Q^2$ can sell products in the domestic market, the demand for which displays the function $D = 60 - P1$, and on the world market at price $P2 = 30$.
Determine the volume of sales in both markets, the price in the domestic market and the profit of the monopoly

A large store is going to order a large collection of suits for the spring season. Management decided to order four types of suits. Three types are not expensive (polyester blends, wool, cotton). The fourth type – the expensive imported model made using different tissues (elastik). Available experience and special studies allow us to estimate the average cost of working time to sale one suit of each type, the amount of advertising costs and space per one suit of each type. All this data is presented in the table.

| Type of suit | Prise, $ | Time, hours | Adv, $ | S, м² |
|---|---|---|---|---|
| Polyester | 35 | 0,4 | 2 | 1,0 |
| Wool | 47 | 0,5 | 4 | 1,5 |
| Cotton | 30 | 0,3 | 3 | 1,25 |
| Elastik | 90 | 1,0 | 9 | 3,0 |

It is assumed that the spring season will last 90 days. The store is open 10 hours a day, 7 days a week. Two sellers are constantly working in the suit department. A suit department area is 100*60 m2. The budget allocated for the advertising of all the suits for the spring season is 15000$
1.How many suits of each type should be purchased to maximize the profit?
2. For example, the store Manager finds it necessary to buy at least 200 suits each type. How this requirement will affect the profit of the store?