

EXERCISE 2

SUPPLY AND DEMAND

September 27, 2018

1. The pork market in Catalonia consists of 2000 farms operating under perfect competition. The ham demand is determined by the following expression:

$$Q^D = 20 + \frac{1}{2}I^2 - 3P_H + 7P_F$$

where the income is $I = 25$, the price of ham is $P_H = 10$ and the price of fuet is $P_F = 7$

- Calculate the price elasticity of demand for ham.
 - If the income increases by 100%, in what proportion would the demand for ham increase? What kind of product is ham?
 - Calculate the cross price elasticity of ham with regard to the price of fuet. What kind of relationship exists between ham and fuet?
2. The demand function for cookies that a cookie producer faces is

$$Q^D = 1000 - 3P + 0.2I$$

where P is the price of cookie and $I = 4000$ the income.

- Calculate the price elasticity of demand for both $P = 350$ and $P = 200$. Discuss the results.
 - Calculate the price elasticity of demand between the two points above.
 - What price should the company set to maximise its revenue?
 - What would this maximum revenue be?
 - Calculate the income elasticity of cookies for the price $P = 200$
3. Suppose that there are two groups of people. Group A is composed of 10 individuals each of whom has the same demand function for good x . On the other hand, group B is composed of 10 individuals each of whom has also the same demand function for good x . These two functions are:

Group A :

$$P_x = 6 - \frac{1}{2}Q_x$$

Group B :

$$P_x = 5 - \frac{1}{3}Q_x$$

Please, calculate the market demand function for the good x and represent it graphically.

4. Suppose a single company produces the good x . It faces the following market demand for this good x :

$$Q_x = 10 - 8P_x + 0.5P_y + 2I$$

The following values are given: $P_x = 10$, $P_y = 20$, and income $I = 100$

- (a) Calculate the price elasticity of demand for good x when its price is 10 ($P_x = 10$)
- (b) Calculate the price elasticity of demand for good x when its price is 15 ($P_x = 15$)
- (c) Calculate the midpoint elasticity of the demand function in the section going from price 10 to price 15 for the good x .
- (d) What is the price of good x which will maximise the turnover of this company?
- (e) Calculate the income elasticity of demand for good x . What type of good is it?
- (f) Calculate the cross-price elasticity of good x in relation to the price of good y . What relation have the two goods?