Learning activity 5

True/False answers

1. If the price elasticity of the demand for chocolates is greater than one, then the manufacturers of chocolates can increase their total revenue by raising the price of chocolate.

    1. True
    2. False

    If price elasticity is greater than one it means that a certain percentage increase in price will results in a percentage decrease in quantity demanded that is larger than the percentage by which the price increased. Thus the total revenue (price x quantity sold) of the company will decrease.

2. The producers of a product with an elastic demand will have a strong incentive to reduce the price of their product.

    1. True
    2. False

    If the demand for a good is elastic it means that the percentage by which quantity demanded will increase due to a decrease in the price of a good, will be larger than the percentage by which price decreased. Thus the total revenue (price x quantity sold) will increase when the price decreases. This will be an incentive to reduce the price of the product.

3. If a 10% increase in the price of good A results in a 5% reduction in the quantity of A demanded, then the price elasticity of the demand for A is more than one.

    1. True
    2. False

    Price elasticity is *more than one* if the percentage by which quantity demanded changes is *larger* than the percentage by which the price changes. In this case the % change in the quantity demanded is *smaller* (5%) than the % by which the price changed (10%).

4. Necessities tend to have a low price elasticity of demand while luxury goods tend to have a high price elasticity of demand.

    1. True
    2. False

    This is true. It is more difficult to change the quantity bought of necessities than it is to change the quantity demanded for luxury goods. Therefore the demand for necessities is

relatively price inelastic (lower price elasticity) while the demand for luxury good is relatively price elastic (higher price elasticity).

5. The price elasticity of the demand for steak will be greater than the price elasticity of demand for meat.

1. True
2. False

Steak is a more expensive, luxury meat cut. Therefore the price elasticity of the demand for steak will be relatively high. All meat combined include cheaper types of meat that are regarded as less of a luxury. Therefore the overall demand for meat will be less income elastic.

6. Income elasticity of demand is a measure of the responsiveness of quantity demanded to changes in consumers' incomes.

1. True
2. False

7. A good with an income elasticity of demand that is positive but less than one is classified as an inferior good.

1. True
2. False

A good with income elasticity of demand that is positive but less than one is classified as an essential good. Income elasticity of an inferior good will be negative, i.e. less than zero.

8. When two goods are totally unrelated, the cross-elasticity of demand value will be negative.

1. True
2. False

It does not make sense to calculate cross-elasticity of demand for goods that are totally unrelated. If cross-elasticity of demand is negative, the goods involved are complements. For example, if the price of coffee increases, the quantity of coffee demanded will decrease. The demand for coffee creamer will most likely also decrease, thus the cross-elasticity of demand for coffee and coffee creamer will be negative. When the price of coffee *increases*, the demand for coffee creamer *decreases.*

9. Apples and pears are substitute goods to each other. The cross-elasticity value for apples and pears will be negative.

1. True
2. False

The cross-elasticity value for goods that are substitutes will be positive. When the price of apples *increases*, the quantity demanded of apples will decrease, and the demand for its substitute, pears, will *increase*. Thus the cross-elasticity value will be positive.

10. If the price of electricity, a complement in consumption to T-shirts, increases, then the quantity demanded for T-shirts will decrease and the cross-elasticity value for these two goods will be negative.

    1. True
    2. False

    This is true. Because the quantity demanded of T-shirts and the price of electricity changes in opposite directions, the cross-elasticity values that will be calculated will be negative.

Review answers

1. Define each of the following terms:

    1.1 Price elasticity of demand
    1.2 Income elasticity of demand
    1.3 Cross-price elasticity of demand
    1.4 Price elasticity of supply

    1.1 **Price elasticity of demand**: the percentage change in the quantity demanded as a result of a 1% change in the price of the product (*ceteris paribus*).
    1.2 **Income elasticity of demand**: the percentage change in the quantity demanded as a result of a 1% change in consumers' income (*ceteris paribus*).
    1.3 **Cross-price elasticity of demand**: the percentage change in the quantity demanded of one product as a result of a 1% change in the price of another product (*ceteris paribus*).
    1.4 **Price elasticity of supply**: the percentage change in the quantity supplied as a result of a 1% change in the price of the product (*ceteris paribus*).

2. For what numerical values of the price elasticity of demand is the demand:

    2.1 perfectly elastic
    2.2 relatively inelastic
    2.3 relatively elastic
    2.4 unit elastic

2.5 perfectly inelastic

2.1 Infinite (we use the sign ∞ to represent infinity)
2.2 Greater than zero, but less than one
2.3 Greater than one, but less than infinity
2.4 One
2.5 Zero

3. The income elasticity coefficients of demand for motor cars and branded clothing have been estimated to be +3.4 and +2.0, respectively. Explain these coefficients.

An increase of 1% in income leads to a 3.4% increase in quantity demanded of motor cars; an increase of 1% in income leads to 2% increase in quantity demanded of branded clothing.

4. Consider two goods, product A and product Q. The price of product A increases from R6 to R8 per unit and, as a result, the quantity demanded of product Q decreases from 200 to 190 units.

4.1 Calculate the cross-price elasticity of demand, given the information above.
4.2 Are product A and product Q substitutes or complements?
4.3 What are possible real-life examples of goods like product A and product Q?

4.1 To calculate the cross-price elasticity of demand:

- the quantity demanded of Q decreases by 10 from 200 units to 190 unit
- the price of A increases by R2 from R6 to R8.

Now we calculate the cross-price elasticity of demand:

$$Percentage\ change\ in\ quantity\ of\ product\ Q = \frac{-10}{200} \times 100 = -5\%$$

$$Percentage\ change\ in\ price\ of\ A = \frac{2}{6} \times 100 = 33{,}33\%\%$$

$$Cross\ elasticity\ of\ demand = \frac{-5\%}{33{,}33\%} = -0{,}15$$

4.2 Complements

4.3 Bread and Butter, DVDs and DVD players, petrol and cars