

## Homework 2 – KEY

Average: 81.62 + Opts GI bonus

Due on 29/8/2023, by 23:00

This assignment is optional but STRONGLY RECOMMENDED. If you do not submit the answers till the deadline, the score of your final exam will substitute for the score for this assignment. Submit only the correct letter for each task on eLearn under 'Quizzes' within 'COR2100-Economics and Society G7-8-26-49'. Note that the actual text of questions and answers is not supposed to appear on the eLearn quiz. You have unlimited attempts. The system is programmed to credit your last attempt. Be informed that if you submit an attempt and afterwards you re-open the quiz, you must submit your answers AGAIN. Otherwise, the system will grade the unfinished attempt with 0 (because it is the last one) and there is NOTHING I can do to fix this after the fact. Late homework or homework submitted outside eLearn cannot be accepted as this would violate SMU official policy for fairness and transparency in grading. This assignment is protected by Grade Insurance™: If the assignment's average turns out to be below 75, an equal amount of bonus points will be given to every work, for the average to become 75. Direct any homework questions to your TA.

1. ✓ Which of the following best explains the Law of Demand?

- 91%A. **When the price of a good decreases, consumers tend to buy more of it.**
- B. When consumer's income increase, they tend to buy more products.
- C. Consumer's tastes are affected by the prices of goods.
- D. Consumer's preferences are independent of the goods' substitutes.
- E. All of the above.

*[The law of demand states that as the price of a good increases, its quantity demanded tends to decrease and vice versa. The Law of Demand per se does not examine substitutes, complements, income etc.]*

2. In the early 2000s, an average motorcycle would cost \$8,000 and an average refrigerator \$600. Today, an average motorcycle would cost \$12,000, while an average refrigerator costs \$900. Which of the following is true for the opportunity cost of refrigerators in terms of motorcycles?

- A. It has increased.
- B. It has decreased.
- 73%C. **It has not changed.**
- 17%D. We have no sufficient information to tell.

*[The opportunity cost of refrigerators in terms of motorcycles in the early 2000s was  $OC_{RM} = \frac{\text{price}_R}{\text{price}_M}$  or  $OC_{RM} = \frac{600}{8,000}$  or  $OC_{RM} = 0.075$  and today it is  $OC'_{RM} = \frac{900}{12,000}$  or  $OC'_{MP} = 0.075$ . This means that the opportunity cost of refrigerators in terms of motorcycles remains the same]*

3. Suppose that the price of the good on the horizontal axis triples, while the price of the good on the vertical axis doubles. Which of the following is accurate?

- 11%A. The budget line moves closer to the origin but its slope does not change.
- B. The budget line moves away from the origin but its slope does not change.
- 25%C. The budget line will become flatter (more horizontal).
- 62%D. **The budget line will become steeper (more vertical).**

*[Since the intercept on the horizontal axis moves inward more than the intercept on the vertical axis, the budget line will become steeper]*

4. In recent years, there is an increase in the demand for electric cars. Which of the following could be the reason?

- 81%A. **The increase in the price of petrol.** *[True since it is part of internal combustion engine vehicles' operation cost, which are electric cars' substitutes]*
- B. The increase in the price of electricity. *[This would decrease the demand for electric cars]*
- C. The decrease in the production cost of electric cars. *[This affects the supply of electric cars]*
- 15%D. The decrease in the prices of electric cars. *[This affects the quantity demanded for electric cars]*

$Q_A$	30	25	20	15	10
$P_A$	100	400	1,000	2,000	5,000

**Table 2.1:** The price and the corresponding quantity demanded for good A.

5. According to table 2.1, what is the price elasticity of demand for good A most probable to be?

A. A totally inelastic or vertical demand curve.

83%B. **A relatively inelastic or somewhat vertical demand curve.**

12%C. A relatively elastic or somewhat horizontal demand curve.

D. A totally elastic or horizontal demand curve.

*[We observe that the quantity does not change significantly despite the large changes in price level, which means that the elasticity of demand for good A relatively inelastic]*

6. According to table 2.1, which of the following goods is most likely to be good A?

49%A. **Petrol.**

38%B. Aspirin.

C. Pop-corn.

D. Cow's milk.

*[Aspirin, pop-corn and cow's milk have many substitutes, so their elasticity of demand is relatively high. On the other hand, petrol is harder to substitute]*

7. Which of the following would cause Netflix's demand curve to decrease?

91%A. **The decrease in the price of Amazon Prime's subscription.** *[True, since Netflix and Amazon Prime are substitutes]*

B. The decrease in the price of Netflix's subscription. *[This would cause a move along the same demand curve]*

C. Both A and B.

D. None of the above.

**Scenario 2.1:** Claire takes dancing (D) and piano (P) lessons and she receives zero utility unless she does one of these activities once a month. Claire's marginal utility from the two activities is:

Times/Month	1	2	3	4	5	6	7
$MU_D$	80	64	50	35	20	10	-15
$MU_P$	45	37	33	23	12	1	-7

8. According to scenario 2.1, which of the following is more preferable for Claire?

A. Zero lessons of dancing or piano. *[This gives Claire 0 units of utility]*

93%B. **5 dancing lessons.** *[This gives Claire  $80 + 64 + 50 + 35 + 20 = 249$  units of utility]*

C. 7 dancing lessons. *[This gives Claire  $80 + 64 + 50 + 35 + 20 + 10 - 15 = 244$  units of utility]*

D. 7 piano lessons. *[This gives Claire  $45 + 37 + 33 + 23 + 12 + 1 - 7 = 144$  units of utility]*

9. ✓ According to scenario 2.1, how much is Claire's utility if she takes 3 dancing and 3 piano lessons in one month?
- A. Around 100.
  - B. Around 200.
  - 86% C. **Around 300.**
  - D. Around 400.

*[The utility from dancing is  $80 + 64 + 50 = 194$  and the utility from piano is  $45 + 37 + 33 = 115$ . The total utility is 309]*

10. According to scenario 2.1., if the cost of dancing is \$40 per lesson and the cost of piano is \$80 per lesson, how many dancing and piano lessons will Claire have in one month if she has \$900 to spend on them?

- 10% A. 4 dancing and 4 piano lessons.
- B. 5 dancing and 5 piano lessons.
- 72% C. **6 dancing and 6 piano lessons.**
- 14% D. 7 dancing and 7 piano lessons.

*[\$900 is enough for Claire to take as many dancing and piano lessons as she wants. However, she will choose to do these activities as long as she gets positive utility from them. Therefore, this happens until the 6th dancing and the 6th piano lesson]*

11. ✓ According to scenario 2.1., if the cost of dancing is \$40 per lesson and the cost of piano is \$80 per lesson, how many dancing and piano lessons will Claire have in one month if she spends \$240 on them?

- A. 6 dancing and 0 piano lessons.
- 83% B. **4 dancing and 1 piano lessons.**
- 14% C. 2 dancing and 2 piano lessons.
- D. 0 dancing and 3 piano lessons.

*[-The first 80 dollars: Either take 2 dancing lessons, which yield  $80 + 64 = 144$  units of utility or 1 piano lesson which yields 45 units of utility. Claire will be better off spending those on dancing.  
-The next 80 dollars: Either take 2 dancing lessons, which yield  $50 + 35 = 85$  units of utility or 1 piano lesson which yields 45 units of utility. Claire will be better off spending those on dancing.  
-The next 80 dollars: Either take 2 dancing lessons, which yield  $20 + 10 = 30$  units of utility or 1 piano lesson which yields 45 units of utility. Claire will be better off spending those on piano. Claire will take 4 dancing lessons and 1 piano lesson]*

12. ✓ According to scenario 2.1., if the cost of dancing is \$40 per lesson and the cost of piano is \$80 per lesson, how much utility will Claire receive in one month from these activities, if she spends \$240 on them?

- A. Around 150.
- 88% B. **Around 300.**
- C. Around 450.
- D. Around 600.

*[From the previous task, 4 dancing lessons will yield  $80 + 64 + 50 + 35 = 229$  and 1 piano lesson 45. So, her total utility will be 274]*

13. Suppose that the price elasticity of demand for cars at a given level of production is -1. What should the car manufacturer do to increase their revenue?
- A. Increase the price of cars.
  - 11%B. Decrease the price of cars.
  - 21%C. Sell more cars.
  - D. Sell less cars.
  - 59%E. **None of the above will increase their revenue.**

*[Unitary elasticity means that a percentage change in price will cause an equal percentage change in quantity demanded and vice versa. Thus, the revenue will be the same regardless the change in price or production level]*

$Q_A$	18	27	33	35
$P_B$	30	20	15	7

**Table 2.2:** The price of good B and the corresponding quantity demanded for good A.

14. According to table 2.2, what is the cross-price elasticity of demand for good A, when the price of good B decreases from \$30 to \$20?
- A. Around -3.
  - 91%B. **Around -1.5.**
  - C. Around 0.
  - D. Around 1.5.
  - E. Around 3.

*[When the price of good B decreases from \$30 to \$20, the cross-price elasticity of demand for good*

*A is equal to:  $\epsilon_{A,B} = \frac{\Delta Q_A/Q_A}{\Delta P_B/P_B}$  or  $\epsilon_D = \frac{(27-18)/18}{(20-30)/30}$  or  $\epsilon_D = \frac{9/18}{-10/30}$  or  $\epsilon_D = \frac{1/2}{-1/3}$  or  $\epsilon_D = -1.5]$*

15. According to table 2.2, which of the following is true for goods A and B?
- A. They are normal goods. *[We need information for income changes for this]*
  - B. They are inferior goods. *[We need information for income changes for this]*
  - 87%C. **They are complements.** *[Quantity demanded for good A increases when price of good B decreases]*
  - 11%D. They are substitutes. *[Quantity demanded for good A decreases when price of good B decreases]*

16. Suppose that Ian's income elasticity for cinema tickets is 3. What will happen to his quantity demanded for cinema tickets if his salary doubles?
- A. It will remain constant.
  - B. It will increase by 100%.
  - C. It will increase by 200%.
  - 79%D. **It will increase by 300%.**

*[Since Ian's income increases by 100% and his income elasticity for cinema tickets is 3, his quantity demanded will increase by 300%, because  $\epsilon = \frac{\Delta Q\%}{\Delta Y\%}$  or  $3 = \frac{\Delta Q\%}{100\%}$  or  $\Delta Q\% = 300\%$ ]*

17. ✓ Which of the following is LESS likely to happen?

- A. An increase in the demand for smartphones causes an increase in the demand for semiconductors. *[Semiconductors and smartphones are complementary, so their demands can shift to the same direction]*
- 93%B. An increase in the demand of Pepsi causes an increase in the demand of Coca-Cola. *[Pepsi and Coca-Cola are substitutes and their demand curves are supposed to shift in opposite directions]*
- C. A decrease in the demand of Adidas shoes causes an increase in the demand of Nike shoes. *[Adidas and Nike shoes are substitutes and their demand curves are supposed to shift in opposite directions]*
- D. An increase in average income causes an increase in the demand of beef. *[Beef could be a normal good]*

18. Suppose that cake's price elasticity of demand is -2, when cake's price is measured in Singapore dollars. Given that 1 Singapore dollar is approximately equivalent with 0.68 Euro, what will the price elasticity of demand for cake be, if we measure cake's price in Euro?

- A.  $-2 \times 0.68$ .
- 12%B.  $-2/0.68$ .
- 79%C. -2.
- D.  $1/2$ .

*[The units of price (or quantity) will not make a difference to the elasticity because elasticity is a pure number with no units. When we divide  $\Delta P/P$  the units of price (currency) cancel out]*

19. Grace has \$200 to spend on comics or board games and she decides to buy 6 comics and 2 board games. At this combination, her marginal utility from comics is 60 and from board games is 120. If the price of a comic is \$20 and the price of a board game is \$40, which of the following would you suggest Grace to do?

- 74%A. To not change her consumption.
- B. To buy more comics and less board games.
- 24%C. To buy more board games and less comics.
- D. To buy more comics and more board games.
- E. To buy less comics and less board games.

*[The marginal utility per dollar for Grace is  $60/20 = 3$  from comics and  $120/40 = 3$  from board games. That is, her last dollar buys exactly the same utility when spent on comics and board games. Thus, she should not change her consumption]*

20. ✓ What is the shape of the demand curve for a Giffen good?

- 94%A. Upward-sloping.
- B. Downward-sloping.
- C. Horizontal.
- D. Vertical.
- E. Hyperbolic.

*[Since Giffen goods' elasticity of demand is positive, it means that their quantity demanded increases with an increase in their price, which yield to an upward-sloping demand curve]*