

EE211 Assignment #2 (Section 2 Semester 2/2020)

Instructions:

- Assigned date is Thursday the 4th, March 2021. **Due date is Thursday the 11th, March 2021 before 11.00 PM.**
 - Submission is only received through BE Moodle platform as PDF file.
 - Name your file as StudentID_nickname, such as 1234567489_Bo. **Please also comply to this instruction. It would be a lot easier to handle with your files.**
 - There is no need to rewrite the question into your answer sheets. Indicating clearly question and item number is sufficient.
 - Write your nickname and student ID on top-right corner of the first page.
 - For those who do not have a digital device to write on, you can write your answers in sheets of paper, take pictures, convert them into a single PDF then submit in on Moodle.
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1. Belle is choosing ham (h) and cheese (c), which is assumed to be substitutable goods for her. Her total utility from each product is given in the table here.

Quantity	Total utility from ham (TU_h)	Total utility from cheese (TU_c)
1	15	12
2	26	21
3	35	27
4	41	32
5	45	35
6	48	37
7	49	38

Answer the following questions.

(a) If Belle has \$7 budget and both ham and cheese cost \$1 each, how many units of ham and cheese she should purchase to maximize her utility? Explain your method clearly.

(b) Provide a clear explanation why her utility will not be maximized if the condition that you apply in part a. is not yet satisfied.

1. Belle is choosing ham (h) and cheese (c), which is assumed to be substitutable goods for her. Her total utility from each product is given in the table here.

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Answer the following questions.

the price is equal

(a) If Belle has \$7 budget and both ham and cheese cost \$1 each, how many units of ham and cheese she should purchase to maximize her utility? Explain your method clearly.

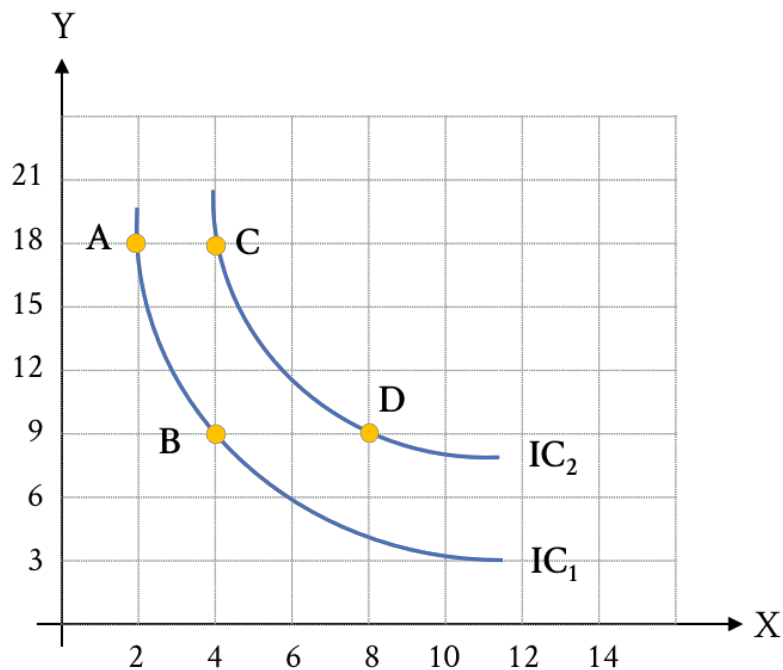
Quantity	MU _h	MU _{cheese}	choice	remaining budget
1	15	12	H ₁ , C ₁	7-1=6
2	11	9	H ₂ , C ₁	6-1=5
3	9	6	H ₂ , C ₂	5-1=4
4	6	5	H ₃ , C ₂	4-1=3
5	4	3	H ₃ , C ₃	3-1=2
6	3	2	H ₄ , C ₃	2-1=1
7	1	1	H ₅ , C ₃	1-1=0

To maximize utilities Belle will choose food by compare the marginal utility so she choose 4 Ham and 3 cheese

(b) Provide a clear explanation why her utility will not be maximized if the condition that you apply in part a. is not yet satisfied.

Law of diminishing is when we consume the same goods the utility will decrease. In order that Belle consume that mean if her don't use the maximization in (a) she maybe consume 6 quantity of ham and the result is the utility that she get will not be what it should be.

2. A consumer finds that for him/her avocado (X) and nuts (Y) are substitutes. Assumed that this consumer yields 8 and 12 utils on IC1 and IC2 respectively, show your work and answer the following questions.



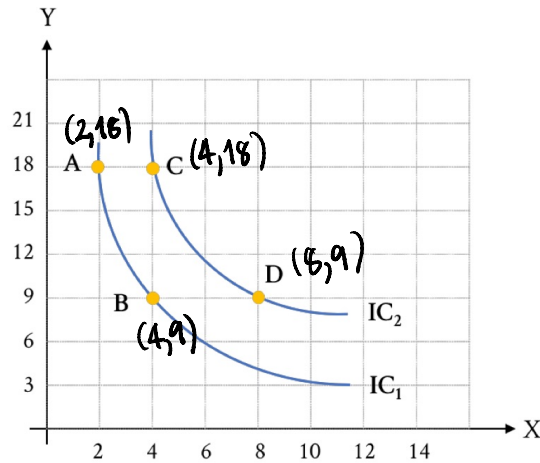
(a) Measured from point A to B, assumed P_y is 10 baht per unit, how much P_x must be to make you conclude that the consumer's equilibrium is on point B?

(b) Measured from point A to B, assumed P_x is 180 baht per unit, how much budget does this consumer has to achieve the equilibrium on point B?

(c) Measured from point C to point D, how much is the average marginal utility per unit of avocado?

(d) Show that this consumer's utility received from consuming avocado is in accordance with the law of diminishing marginal utility, using any essential information from any point. (But highly recommend that you consider all the points)

2. A consumer finds that for him/her avocado (X) and nuts (Y) are substitutes. Assumed that this consumer yields 8 and 12 utils on IC1 and IC2 respectively, show your work and answer the following questions.



(a) Measured from point A to B, assumed P_y is 10 baht per unit, how much P_x must be to make you conclude that the consumer's equilibrium is on point B?

$$\text{Find } MRS_{AB} = \left| \frac{18-9}{2-4} \right| = 4.5$$

From point A to point B consumer have sacrifice 9 quantity of nut to gain 2 quantity of avocado

$$MRS_{xy} = \frac{\Delta y}{\Delta x} = \frac{P_x}{P_y}$$

At equilibrium $4.5 = \frac{P_x}{10} \therefore P_x = 45$ baht per unit

(b) Measured from point A to B, assumed P_x is 180 baht per unit, how much budget does this consumer has to achieve the equilibrium on point B?

$$\text{Find } MRS_{xy} = \frac{\Delta y}{\Delta x} = \frac{P_x}{P_y}$$

$$MRS_{AB} = \left| \frac{18-9}{2-4} \right| = 4.5$$

Find P_y if $P_x = 180$

$$4.5 = \frac{180}{P_y}$$

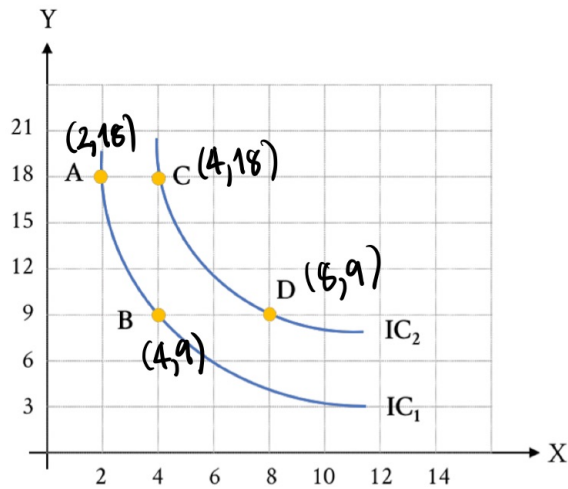
$$P_y = 40 \text{ per unit}$$

\therefore calculate the budget at equilibrium on point B $(4, 9)$

$$(180 \cdot 4) + (40 \cdot 9) = 720 + 360$$

$$= 1080 \text{ baht}$$

2. A consumer finds that for him/her avocado (X) and nuts (Y) are substitutes. Assumed that this consumer yields 8 and 12 utils on IC1 and IC2 respectively, show your work and answer the following questions.



(c) Measured from point C to point D, how much is the average marginal utility per unit of avocado?

At point C

$$4MU_x + 18MU_y = 12 \quad \text{--- ①}$$

At point D

$$8MU_x + 9MU_y = 12 \quad \text{--- ②}$$

To find MU_x

$$\text{①} \times 2 \quad 8MU_x + 36MU_y = 24 \quad \text{--- ③}$$

$$8MU_x + 9MU_y = 12 \quad \text{--- ②}$$

$$\text{③} - \text{②}$$

$$27MU_y = 12$$

$$MU_y = \frac{4}{9}$$

substitute MU_y in ②

$$8MU_x + 4 = 12$$

$$8MU_x = 8$$

$$MU_x = 1$$

(d) Show that this consumer's utility received from consuming avocado is in accordance with the law of diminishing marginal utility, using any essential information from any point. (But highly recommend that you consider all the points)

Law of diminishing is when you consume the same goods the utility that you get will decrease compare to the first impression. According to point A, B and C, D it exactly the same concept point A and C consumer consume a lot of nut that mean Marginal utility of nut is low in other hand marginal utility of avocado is high this represent that consumer willing to sacrifice nut to consume avocado for example point (A \rightarrow B) consumer sacrifice 9 nuts to gain 2 avocado instead.