

**Instructions**

- (1) Please read the instruction carefully. Also take this habit with you into the exam room.
- (2) Please read each question carefully and answer the questions straightforwardly. Always provide economic reasons at least a paragraph for your analysis, or a graph when necessary, even when the question does not indicate so.
- (3) Handing and submitting assignments are only available via BE Moodle.

**Answering the questions and preparing answer sheets**

- (1) Answers are to be handwritten, in either digital or analog form, in a blank canvas or any clean paper. Make sure that your handwriting is clearly visible and readable.
- (2) There is no need to rewrite the question. Just indicate the question number clearly for each of the answer, such as 1.a).
- (3) When done, for the digital case, collage all the pages into a single PDF file. For those who write on sheets of paper, take photo of all pages then convert all of them into a single PDF file as well.
- (4) **Name your PDF file as StudentID\_YourNickname, such as 640123456\_Bo.**

**Submitting your answers**

- (1) Make sure your file does not exceed 10MB. This is the maximum file size for BE Moodle upload.
- (2) Login to BE Moodle, head into the course, then the assignment topic.
- (3) Choose your file to submit. Done. There will be timestamp for your upload date and time, so please make sure to not submit later than that.

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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.

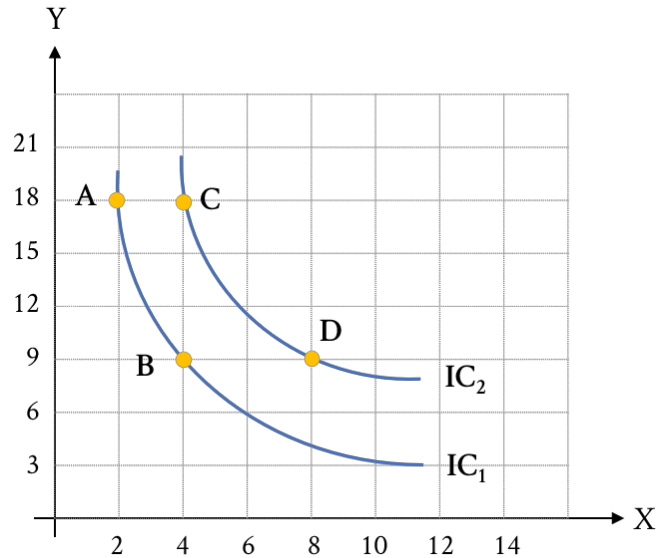
**1.a)** If Belle has \$7 budget and both ham and cheese cost \$1 each, how many units of ham and cheese she should purchase to maximize her utility? Explain your method clearly.

**1.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.

## Assignment 2

Assigned on Sep 22<sup>th</sup>, 2021. To be submitted on Oct 7<sup>th</sup>, 2021 before midnight.

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  $IC_1$  and  $IC_2$  respectively, show your work and answer the following questions.



2.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?

2.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?

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

2.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)

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 <sub>h</sub> )	Total utility from cheese (TU <sub>c</sub> )
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Answer the following questions.

1.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.

1.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.

Quantity	Total utility from ham (TU <sub>h</sub> )	Total utility from cheese (TU <sub>c</sub> )
1	15	12
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6	48	37
7	49	38

MU <sub>h</sub>	MU <sub>c</sub>	MU <sub>h/p</sub>	MU <sub>c/p</sub>
15	12	<del>15</del>	<del>12</del>
11	9	<del>11</del>	<del>9</del>
9	6	<del>9</del>	<del>6</del>
6	5	<del>6</del>	5
4	3	4	3
3	2	3	2
1	1	1	1

Belle has \$ 7  $P_H = \$1$   $P_C = \$1$

- a) Decision
- 1 ; choose ham ( $15 \geq 12$ ) ; remain  $7-1=6$
  - 2 ; choose cheese ( $12 \geq 11$ ) ; remain  $6-1=5$
  - 3 ; choose ham ( $11 \geq 9$ ) ; remain  $5-1=4$
  - 4 ; choose cheese ( $9 \geq 9$ ) ; remain  $4-1=3$
  - 5 ; choose ham ( $9 \not\geq 6$ ) ; remain  $3-1=2$
  - 6 ; choose cheese ( $6 \geq 6$ ) ; remain  $2-1=1$
  - 7 ; choose ham ( $6 \geq 5$ ) ; remain  $1-1=0$

Belle choose 4 hams and 3 cheese of her budget  
 $\therefore$  Her total Utility (TU) is equal to  $41 + 27 = 68$

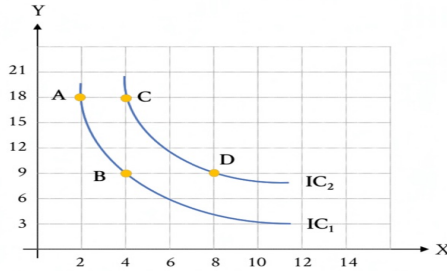
b) Because if she chosen ham more than cheese or  $(\frac{MU_H}{P_H} > \frac{MU_C}{P_C})$  she will satisfied only choose ham.

but the maximize condition for equilibrium states that

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

that both ham and cheese in an equally amount.

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  $IC_1$  and  $IC_2$  respectively, show your work and answer the following questions.



2.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?

2.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?

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

2.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)

$$a) |MRS_{xy}| = \frac{MU_x}{MU_y}$$

$|MRS_{xy}| = \frac{9}{2}$  and at consumer's equilibrium  $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$  then

$$\frac{9}{2} = \frac{P_x}{10}$$

$$P_x = 45 \text{ ₺}$$

$$b) \frac{MU_x}{MU_y} = \frac{9}{2}$$

$$P_y = \frac{9}{2} = \frac{180}{P_y}$$

$$P_y = 40$$

find total budget at point B;  $x = 4, y = 9$

$$\begin{aligned} I &= P_x \cdot x + P_y \cdot y \\ &= (180) \cdot 4 + 40 \cdot (9) \\ &= 1080 \end{aligned}$$

- c) C to B, consumer loses 4 utils consuming 9 units less nut  
 B to D, consumer gain back 4 unit from consuming 4 units more avocado  
 Consuming 4 more avocados 4 unit of  $MU_x$   
 $\therefore$  the average  $MU_x$  is  $\frac{4}{4} = 1$  unit\*

$$d) MU_x = \Delta \text{Utility}$$

(from A  $\rightarrow$  C)

$$\begin{aligned} \text{At A: } x &= 2, U = 8 \\ \text{C: } x &= 4, U = 12 \end{aligned}$$

$$MU_x = \frac{U_2 - U_1}{x_2 - x_1} = \frac{12 - 8}{4 - 2} = \frac{4}{2} = 2$$

(from B to D)

$$\begin{aligned} \text{At B: } x &= 4, U = 8 \\ \text{D: } x &= 8, U = 12 \\ &= \frac{U_2 - U_1}{x_2 - x_1} = \frac{4}{4} = 1 \end{aligned}$$

$\therefore$  this consumer continues to consume avocado, its margined utility is decreasing with the law of diminishing margined utility.