

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

MU_h MU_c

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.

Answer

$$\left. \begin{array}{l} \text{Budget } \$7 \\ \text{ham cost } \$1 \\ \text{Cheese Cost } \$1 \end{array} \right\} h + c = \$7$$

$$\begin{array}{l} 4h + 3c = 7 \\ 4(1) + 3(1) = 7 \end{array}$$

$$\frac{MU_x}{MU_y} = \frac{P_h}{P_c}$$

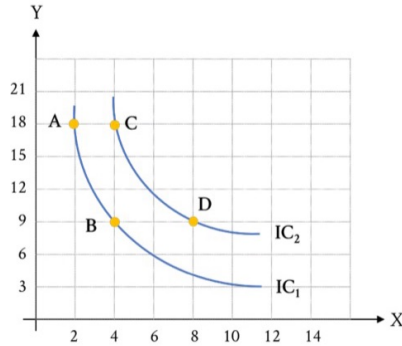
∴ To maximize her utility, she should buy 4 ham and 3 cheese.

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.

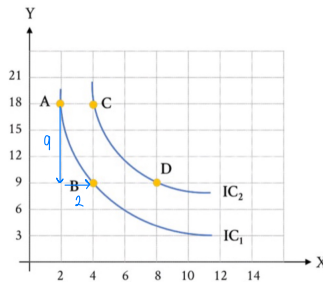
Answer

According to 1.a at point 4 ham and 3 cheese is her maximized utility that she will be satisfied because she used all of her budget. Otherwise, if she decides to buy another number of ham and cheese (other point) from the table, it will not make her satisfied or it will not be her maximized utility because she might not use all of her budget or the price may be higher than her budget.

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.



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?



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

$$-\frac{P_x}{P_y} = \frac{\Delta Y}{\Delta X}$$

$$-\frac{P_x}{10} = \frac{18-9}{2-4}$$

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

$$P_x = \frac{9 \times 10}{2} = 45$$

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?

$$\text{Max } P_y: -\frac{P_x}{P_y} = -\frac{9}{2}$$

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

$$\left(\frac{180}{P_y}\right) 2 = 9$$

$$\frac{360}{9} = P_y$$

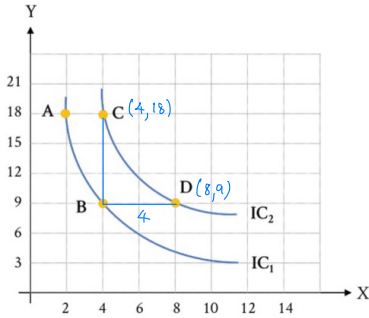
$$\therefore P_y = 40$$

$$I = MU_x \cdot P_x + MU_y \cdot P_y$$

$$I = 2(180) + 9(40)$$

$$I = 720$$

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



$$\text{average } M_u \text{ of avocado} = \frac{M_u}{Q}$$

at C, have 4 avocado

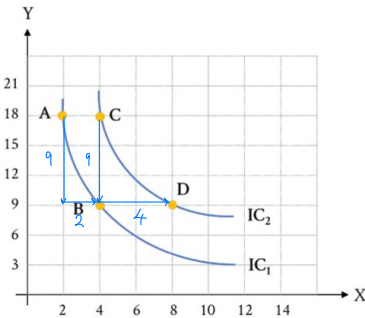
at D, have 8 avocado

avocado increase from 4 to 8

(assumed that consumer yields 8 and 12 utility)

$$\therefore \frac{M_u}{Q} = \frac{4 \text{ units}}{4 \text{ units}} = 1$$

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)



\therefore Point A to B, willing to loose 9 units of 2 avocado

- mrs = 4.5

The willing to loose 4.5 units is losing 4.5 units of 1 avocado

\therefore Point C to D, willing to loose 4 avocado

- mrs = 2.25 nuts for 1 avocado

\therefore When consumer buy more avocado, the willing to sacrifice of nuts is less and less due to the MU_x decrease as the Q increase

- This show the law of diminishing MU & MRS.