

1.a) \$7 $\rightarrow$ budget , \$1 $\rightarrow$ both ham & cheese's price

Unit	MU _h	MU _c	MU _h /P _h	MU _c /P _c	Decision	Budget Remaining
1	15	12	15	12	h ₁	7-1 = 6\$
2	11	9	11	9	C ₁	6-1 = 5\$
3	9	6	9	6	h ₂	5-1 = 4\$
4	6	5	6	5	C ₂	4-1 = 3\$
5	4	3	4	3	h ₃	3-1 = 2\$
6	3	2	3	2	C ₃	2-1 = 1\$
7	1	1	1	1	h ₄	<u>1-1 = 0\$</u>

$\therefore$ There are 4 ham and 3 cheese that she should purchase to maximize her utility.

1.b) I : 7\$ $\Rightarrow$ ham = 4 units and cheese = 3 units

$$MRS_{hc} = \frac{MU_h}{P_h} = \frac{MU_c}{P_c} \rightarrow 6 = 6$$

$\therefore$ When she purchase 4 units of ham and 3 units of cheese, she spend all her budget (7\$) and maximized her utility.

2.a) the consumer's equilibrium is on point B, $P_y = 10 \text{ B/unit}$

From point A to B ;

$$|MRS_{xy(b)}| = \left| \frac{\Delta y}{\Delta x} \right| = \frac{y_b - y_a}{x_b - x_a} = \frac{9 - 18}{4 - 2} = \left| \frac{-9}{2} \right| = \frac{9}{2}$$

$$\text{So, } MRS_{xy} = \frac{P_x}{P_y}$$

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

$$P_x = 45$$

$\therefore P_x$ is 45 baht per unit to make conclusion that the consumer's equilibrium is on point B.

2 b) the consumer's equilibrium is on point B, $P_x = 180 \text{ B/unit}$

From 2.a) can conclude that $MRS_{xy} = \frac{9}{2}$ at point A to B ;

$$MRS_{xy} = \frac{P_x}{P_y}$$

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

$$P_y = 40$$

$$I = P_x \cdot x + P_y \cdot y$$

to achieve the equilibrium on point B ; $x = 4, y = 9$

$$\text{So, } I = 180(4) + 40(9)$$

$$I = 720 + 360$$

$$I = 1,080$$

$\therefore$ The budget has 1,080 baht to make this consumer has to achieve the equilibrium on point B.

2.C) From point C ; $MU_x = \frac{\Delta TU}{\Delta x} = \frac{U_2 - U_1}{x_c - x_a}$

$$= \frac{12 - 8}{4 - 2} = 2$$

From point D ; $MU_x = \frac{\Delta TU}{\Delta x} = \frac{U_2 - U_1}{x_D - x_B}$

$$= \frac{12 - 8}{8 - 4} = 1$$

• Average MU $= \frac{2+1}{2} = 1.5$

$\therefore$ The average marginal utility per unit of avocado is 1.5

2.d) IC_1 yields 8 utils and IC_2 yields 12 utils

From point A & C ;

$$\begin{aligned} MU_x &= \frac{\Delta TU}{\Delta x} = \frac{U_2 - U_1}{x_c - x_A} \\ &= \frac{12 - 8}{4 - 2} = 2 \end{aligned}$$

From point B & D ;

$$\begin{aligned} MU_x &= \frac{\Delta TU}{\Delta x} = \frac{U_2 - U_1}{x_D - x_B} \\ &= \frac{12 - 8}{8 - 4} = 1 \end{aligned}$$

MU_x is decreased

$\therefore$ When you consume more avocado, your marginal utility is gradually decreased. You can notice from point A & C, your marginal utility of avocado is 2, but from point B & D, your marginal utility of avocado is decreased to 1.

Because of the law of diminishing marginal utility, if consumers keep going to consume things after utility is maximized, they will get nothing or feel dissatisfaction from consuming these things or services.