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1. (a) If Belle has \$7 budget, both ham and cheese cost \$1 each

h, c	TU_h	MU_h	TU_c	MU_c	MU_h/p_h	MU_c/p_c	choice	remaining budget
1	15	15	12	12	15	12	h_1, c_1	$7 - 2 = \$5$
2	26	11	21	9	11	9	h_2, c_2	$5 - 2 = \$3$
3	35	9	27	6	9	6	h_3, c_3	$3 - 2 = \$1$
4	41	6	32	5	6	5	h_4, c_4	
5	45	4	35	3	4	3		
6	48	3	37	2	3	2		
7	49	1	38	1	1	1		

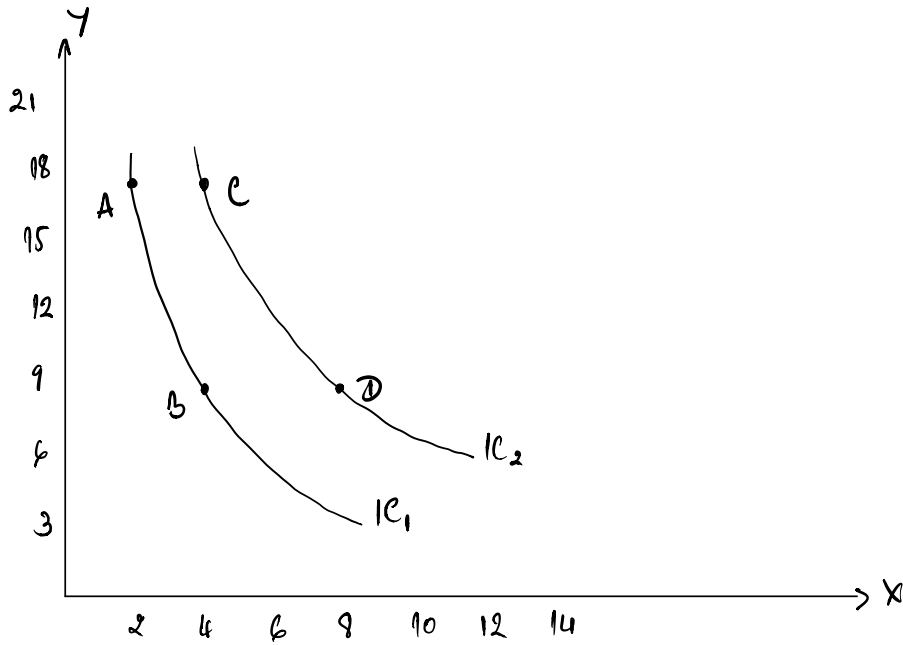
From the chart, Belle should purchase 3 units of ham and 3 units of cheese only.

(b). Belle will not reach the maximum utility due to her budget constraint.

• Maximum utility is when the value of marginal utility $MU=0$.

• Belle's budget constraint is preventing her from purchasing more ham and cheese to the point $MU=0$, thus she can't receive maximum util.

2.



(a)

Assuming the consumer's equilibrium is at point B

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y} \quad \left\{ \begin{array}{l} MU_x = 8, \quad MU_y = 12 \\ P_y = 10 \text{ baht} \end{array} \right.$$

$$\Rightarrow \frac{8}{12} = \frac{P_x}{10} \quad ; \quad P_x = \frac{10 \times 8}{12} = 6.6 \text{ baht}$$

At consumer's equilibrium point B, when the price of y is $P_y = 10$ baht, the price of x: $P_x = 5$ baht

(b)

At point B : Budget line $B = P_x X + P_y Y \quad \left\{ \begin{array}{l} X = 4, \quad Y = 9 \end{array} \right.$

Given $P_x = 180$ baht

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y} \Rightarrow P_y = \frac{MU_y \times P_x}{MU_x} = \frac{12 \times 180}{8} = 270 \text{ baht}$$

Hence, budget line $B = 180 \times 6 + 270 \times 9 = 3150$ baht

(c)

Considering point C to D : $MRS_{xy} = \frac{\Delta Y}{\Delta X} = \frac{9-18}{8-4} = \frac{-9}{4} = -2.25$

$MRS_{xy} = -2.25 \Rightarrow$ There is a loss in relative marginal utility.

(d) According to the law of diminishing marginal utility, the number of utils continues to decline as more unit of a product is being consumed.

In the example, the consumer's utility received from consuming avocado is diminishing. The indifference curves are moving downwards.

At point A, the number of avocados consumed is 2 and the consumer's utility is at its highest. As the number of avocados increased to point B, until point D, the satisfaction level is shrinking.