

Assignment 2

1. exercise 1a)

① First calculating the marginal utility (MU) of ham and cheese since consumer's equilibrium can be achieved by the condition $\frac{MU_h}{MU_c} = \frac{P_h}{P_c}$

Quantity	TU _h	MU _h	TU _c	MU _c
1	15	15	12	12
2	26	11	21	9
3	35	9	27	6
4	41	6	32	5
5	45	4	35	3
6	48	3	37	2
7	49	1	38	1

I	h, c	$\frac{MU_h}{P_h}$	$\frac{MU_c}{P_c}$	choice(s)	remaining budget
7	1	15	12	h ₁	7 - 1 = 6
	2	11	9	c ₁	6 - 1 = 5
	3	9	6	h ₂	5 - 1 = 4
	4	6	5	c ₂ + h ₃	4 - 1 - 1 = 2
	5	4	3	c ₃ + h ₄	2 - 1 - 1 = 0
	6	3	2	↓	
	7	1	1	4x ham + 3x cheese	

$$I=7 \Rightarrow (h^* = 4, c^* = 5)$$

② Calculating net-benefit of ham and cheese. Because both prices of ham & cheese: $P_h + P_c = 1$ $MU_h = \frac{MU_h}{P_h}$ & $MU_c = \frac{MU_c}{P_c}$

③ Then both net-benefits of each ham & cheese are being compared and the higher one is chosen and so on.

↳ This is done because the section with the highest net benefit provides the highest utility

⇒ With this comparison the combination of ham & cheese to maximize utility can be found out

$$\frac{MU_h}{MU_c} = \frac{P_h}{P_c} = \frac{6}{6} = \frac{1}{1} \Rightarrow 1 = 1$$

1b) $\frac{MU_h}{MU_c} = \frac{P_c}{P_h}$, If this condition is not satisfied the utility will not be maximized because you won't have the most utility for every dollar spent on a good.

2. exercise

2a) $IC_1 = 8 \rightarrow A: 18 P_y + 2 \cdot P_x$
 $B: 9 P_y + 4 \cdot P_x$

$A=B \quad 18 \cdot P_y + 2 \cdot P_x = 9 \cdot P_y + 4 \cdot P_x$

$P_y = 10 \Rightarrow 18 \cdot 10 + 2 P_x = 9 \cdot 10 + 4 \cdot P_x$

$180 + 2 P_x = 90 + 4 P_x \quad | -90 \quad | -2 P_x$

$90 = 2 P_x \quad | :2$

$P_x = 45$

2b) $P_x = 180 \rightarrow 18 \cdot P_y + 2 \cdot P_x = 9 \cdot P_y + 4 \cdot P_x$

$18 P_y + 2 \cdot 180 = 9 P_y + 4 \cdot 180$

$18 P_y + 360 = 9 P_y + 720 \quad | -9 P_y \quad | -360$

$9 P_y = 360 \quad | :9$

$P_y = 40$

in B: $9 \cdot 40 + 4 \cdot 180 = 1080$

2c) $MU = \frac{\Delta TU}{\Delta x}$ from C $\rightarrow$ B TU of 12 utils to 8 utils

& from B $\rightarrow$ D x from 4 to 12 $\Rightarrow$ average $MU_x = \frac{4}{4} = 1$ utils

2d) Law of diminishing MU states that MU from consuming a product or service within a period of time diminishes as the consumer keeps consuming it.

Point B $\rightarrow$ D: TU at B = 8 utils and at D it is 12 utils

B: 4 avocados / D: 8 avocados $MU = \frac{12-8}{8-4} = \frac{4}{4} = 1$

Point A $\rightarrow$ C: TU at A = 8 utils and at C = 12 utils

A: 4 avocados / C: 4 avocados $MU = \frac{8-12}{2-4} = 2$

$\Rightarrow$ So, A $\rightarrow$ C and B $\rightarrow$ D MU is diminishing according to the law of diminishing marginal utility.