Eco135 Chapter 6 HW Questions & Answers

Q: "2, 5, 7(a,b,c), 10, Appendix 4(a,b)"

Q2.

# cookie	TU	MU
0	0	0
1	100	100
2	200	100
3	275	75
4	325	50
5	350	25
6	360	10
7	360	0

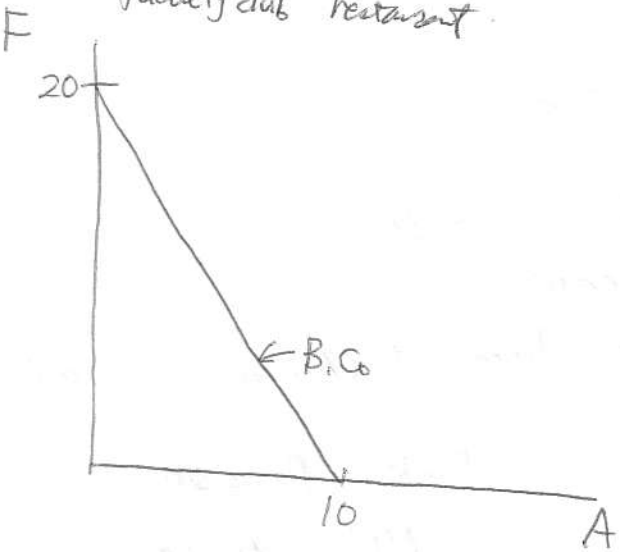
He will most likely eat 6 cookies since 7th cookie doesn't yield any utility.

Q5. a. $P_F = 5$, $P_A = 10$

$P_F \cdot F + P_A \cdot A = 100 \Rightarrow 5F + 10A = 100$

$F = 20 - 2A$

F: # of lunches at the faculty club; A: # of lunches at Alice's restaurant

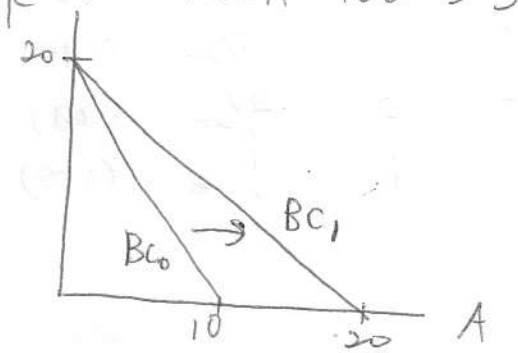


6. $5 * 10 + 10 * 5 = 50 + 50 = 100$

This is within the budget constraint.

C. $P_A' = 5$.

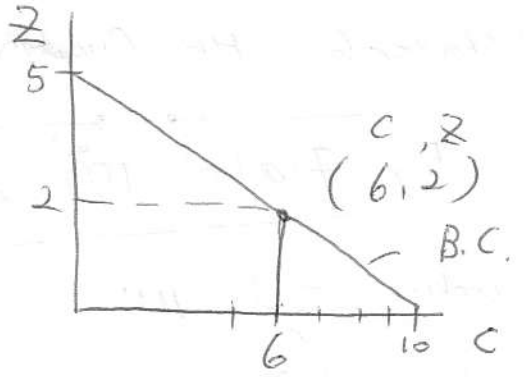
$P_F F + P_A A = 100 \Rightarrow 5F + 5A = 100 \rightarrow F = 20 - A$.



Q7. $P_Z = 20$, $P_C = 10$

a. $20 \cdot Z + 10 \cdot C = 100$

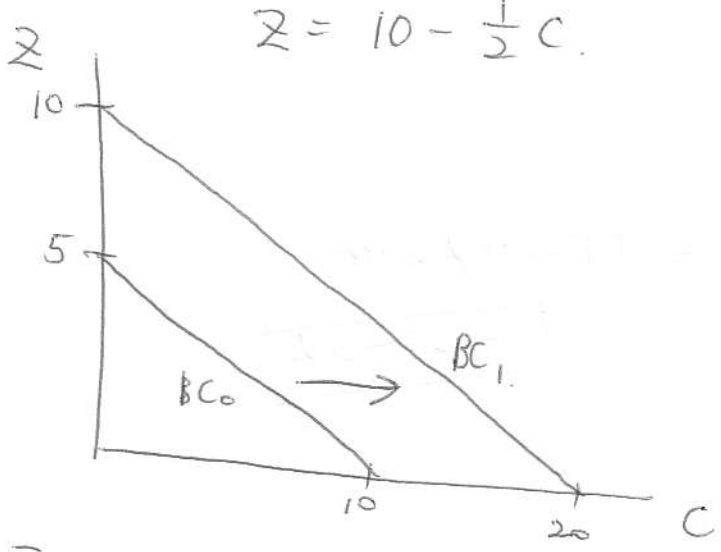
$Z = 5 - \frac{1}{2} C$



* Mistake in the question a.
it has to be " ~ show that she can afford six chinese dinners & two dinners at Zanzibar!"

b. $20Z + 10C = 200$

$Z = 10 - \frac{1}{2} C$.



c. $Z_0 = 2$, $C_0 = 6$ $\Rightarrow$ $Z_1 = 8$, $C_1 = 4$
after income increase

Dinner at Zanzibar is a normal good, dinner at Chinese is an inferior good.

Q10.

a.

Movies $P_M = 8$

# per month	TU	MU	MU/#
1	50	50	50/8 (6.25)
2	80	30	30/8 (3.75)
3	100	20	20/8 (2.5)
4	110	10	10/8 (1.25)
5	116	6	6/8 (0.75)
6	121	5	5/8 (0.625)
7	123	2	2/8 (0.25)

Book $P_B = 20$

# per month	TU	MU	MU/#
1	22	22	22/20 (1.1)
2	42	20	20/20 (1)
3	52	10	10/20 (0.5)
4	57	5	5/20 (0.25)
5	60	3	3/20 (0.15)
6	62	2	2/20 (0.1)
7	63	1	1/20 (0.05)

Q10 (continued)

b. Yes, these figures are consistent with the law of diminishing marginal utility since as more movies or more books are consumed, MU decreases.

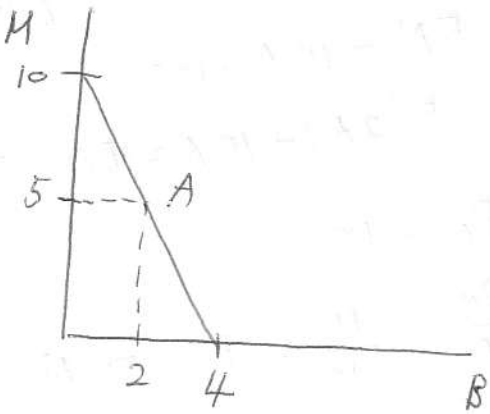
c. $I = 80$

To maximize utility, the individual should allocate income toward those goods with the highest marginal utility per dollar.
The first four movies have a higher marginal utility per dollar than the first book, so the person begins by seeing four movies for \$32. The first book has a higher marginal utility than the fifth movie, so now the person should buy a book, for total expenditure of \$52. Next, the second book, for total spending of \$72. And finally, the fifth movie for total spending of \$80.

$\Rightarrow$ 5 movies + 2 books
(\$40) (\$40)

d. $8M + 20B = 80$

$M = 10 - \frac{5}{2}B$



e. $P_B' = 10$

#/month	Books MU/\$	
1	22/10	(2.2)
2	20/10	(2)
3	10/10	(1)
4	5/10	(0.5)
5	3/10	(0.3)
6	2/10	(0.2)
7	1/10	(0.1)

f. By using the same logic as in (c),

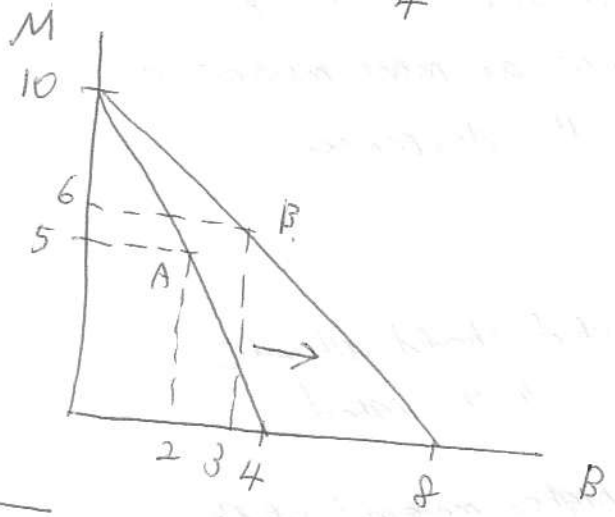
6 movies + 3 books ($TU = 121 + 52 = 173$)
($6 * 8 = \$48$) ($3 * 10 = \$30$)

or

5 movies + 4 books ($TU = 116 + 57 = 173$)
($5 * 8 = \$40$) ($4 * 10 = \$40$)

g. $8M + 10B = 80$

$M = 10 - \frac{5}{4}B$



h. The decrease in the price of books increases the purchasing power of individual's income. The increase in purchasing power will be used to purchase more of one or both goods.

Appendix Q4

$MRS = \frac{MU_N}{MU_A} = \frac{A}{N}$

a. $I = 100$, $P_N = 5$, $P_A = 10$

$\frac{P_N}{P_A} = \frac{MU_N}{MU_A} = \frac{A}{N} \Rightarrow \frac{5}{10} = \frac{A}{N} \Rightarrow N = 2A.$

(utility maximizing condition; assumption of this question * Not always the case.)

$5N + 10A = 100$

$\Rightarrow 5(2A) + 10A = 100 \Rightarrow 20A = 100 \Rightarrow \boxed{A = 5, N = 10}$

b. $P_N = 10$

$\frac{P_N}{P_A} = \frac{10}{10} = 1. \Rightarrow N = A$

$10N + 10A = 100 \Rightarrow 10A + 10A = 100 \Rightarrow 20A = 100 \Rightarrow \boxed{A = 5, N = 5.}$

$P_N = 2$

$\frac{P_N}{P_A} = \frac{2}{10} = \frac{A}{N} \Rightarrow N = 5A$

$2N + 10A = 100 \Rightarrow 2(5A) + 10A = 100 \Rightarrow 20A = 100 \Rightarrow \boxed{A = 5, N = 25}$