Exercise chapter 3:

Q1: The utility function of miss H is U(X,Y)=min(X+2Y,Y+2X). She consumes 10 units of X and 20 units of Y. If the price of X is 1, the income of miss H is?

1. 40
2. 50
3. 30
4. 20
5. None of above

* With X=10, Y=20 => U(X,Y)=min(10+2.20,20+2.10)=min(50,40)
* U(X,Y)= Y+2X
* Mux/Muy=Px/Py ⬄ 2/1=1/Py=> Py=0.5
* I=Px.X+Py.Y= 1.10+0.5x20=20

Q2: Miss H consumes A and B. The price of B is 30 and the price of A is 15. If the income of Miss H is 210, how much of B she can buy?

1. 5
2. 7
3. 14
4. 10
5. None of above.

* PB=30 , PA=15, I=210,
* B=I/Pb=210/30=7

Q3: The utility function of miss S is U(X,Y)=8X+4Y. She consumes 12 units of X and 3 units of Y. If she consumes just 10 units of X, how many unit of Y should she consumes to get the same utility?

1. 7
2. 10
3. 12
4. 5
5. None of above.

X=12, Y=3

MRSx/y= (Y’-Y)/(X’-X)=(Y’-3)/(10-12)=-MUx/MUy (1)

Mux= đạo hàm của U theo X=8

MUy= đạo hàm của U theo Y=4

=>Mux/Muy= -2 (2)

=> (1) and (2): Y’=7

Q4: Utility function of miss O is U(X,Y)=(X+2)(Y+3). Price of X is Px=1 and price of Y is Py=1. Then, miss O will?=> U=XY+3X+2Y+6

1. Consume the same amount of X and Y
2. Consume more X than Y
3. Consume more Y than X
4. Consume only one of the two
5. None of above

* To maximize utility: Mux/Muy=Px/Py=1
* Mux=Y+3
* Muy=X+2
* (Y+3)/(X+2)=1 ⬄ Y+3=X+2 ⬄ X-Y=1

Q5: Indifference curve of Mr.A is X2=C-4X11/2, with C being a positive constant that is positively related to Mr.A, If X1 is shown by the horizontal axis and X2 by the vertical axis, the slope of the indifference curve when X1=16 and X2=9 will be?

1. -2/3
2. -9/16
3. -0.5
4. -13
5. -4

Q6: Julio receives utility from consuming food (F) and clothing (C) as given by the utility function U(F,C) FC. In addition, the price of food is $2 per unit, the price of clothing is $10 per unit, and Julio’s weekly income is $50. What is Julio’s marginal rate of substitution of food for clothing when utility is maximized?

Q7: A consumer finds that for product A, the price is £5 and the consumer's marginal utility is 100 utils, while for product B, the price is £10 and the consumer's marginal utility is 160 utils. Which of the following statements is true?

1. The consumer is maximizing utility from A and B.
2. The consumer would gain more utility from A and B by consuming more A and less B.
3. The consumer would gain more utility from A and B by consuming less A and more B.
4. The consumer could only gain more utility from A and B by consuming more of both products.

Q8: Connie has a monthly income of $200 that she allocates

between two goods: meat and potatoes. Suppose meat costs $4 per pound and potatoes $2 per pound. Suppose also that her utility function is given by the equation u(M, P) = 2M + P. What combination of meat and potatoes should she buy to maximize her utility?

(Hint: Meat and potatoes are perfect substitutes.)

Q9: Phat enjoy s the consumption of C and B according to the function:

U(C,B)=20C-C2+18B-3B2

a. If cost is no object to Phat, how many C and B does he consume?

b. Lately, Phat has been advised by his doctors that he should limit the sum of C and B consumed to 5. How many C and B he will consume to maximize utility?