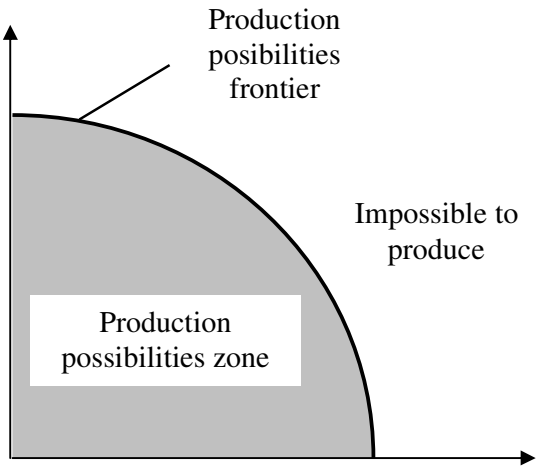
3.

RESOURCES AND PRODUCTION POSSIBILITIES

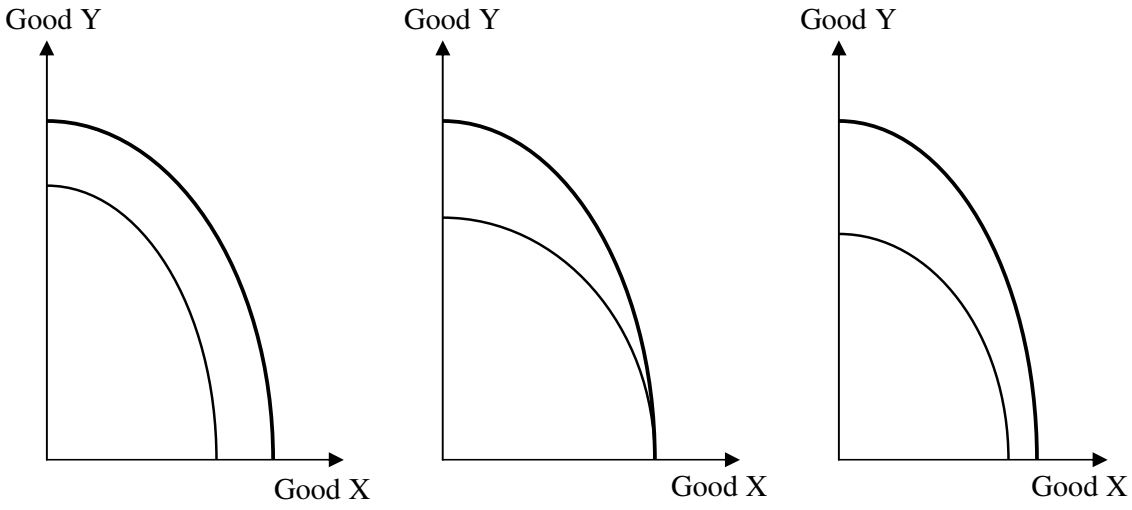
Questions for discussion:

1. Comment on the next figures:

A)



B)



RELATIONS AND EXAMPLES:

1. Relations:

Opportunity cost: $C_O = \frac{Effort}{Effect} = \frac{Sacrifice}{Benefit}$

Solved examples:

1. A traveler is using the plane in order to go from Cluj-Napoca to Budapest in 1 hour. The same trip takes 5 hours by bus. If the plane ticket is 30 USD, and for the bus ticket you are paying 10 USD, which will be the cheapest mean of transportation if that guy is earning 2 USD/hour? What about one that gains 5 USD/hour?

Solution:

	Plane	***Bus***	***choice***
Cost for the ticket	***30***	***10***	*30>10*
Not realized income (1)	*1*2=2*	*5*2=10*	*32>20*
Total (1)	*30+2=**32***	*10+10=**20***	*bus*
Not realized income (2)	*1*10=10*	*5*10=50*	*40<60*
Total (2)	*30+10=**40***	*10+50=**60***	*plane*
Not realized income (3)	*1*5=5*	*5*5=25*	*35=35*
Total (3)	*30+5=**35***	*10+25=**35***	*Doesn't matter*

or:

	1	*2*	*3*
Plane	*2,5*	***0,5***	***1***
Bus	***0,25***	*2*	***1***

$$C_O(1) = \frac{30-10}{(5-1)*2} = \frac{20}{8} = 2{,}5$$

$$C_O(1) = \frac{(5-1)*2}{30-10} = \frac{8}{20} = 0{,}25$$

$$C_O(2) = \frac{30-10}{(5-1)*10} = \frac{20}{40} = 0{,}5$$

$$C_O(2) = \frac{(5-1)*10}{30-10} = \frac{40}{20} = 2$$

$$C_O(3) = \frac{30-10}{(5-1)*5} = \frac{20}{20} = 1$$

$$C_O(3) = \frac{(5-1)*5}{30-10} = \frac{20}{20} = 1$$

2. One individual after the University has a capital of 100 USD and has the next alternatives for starting a carrier:

A) To be hired in one company and to deposit the money with an interest rate of 10%. The salary will be 5 USD/month.

B) To start a business using the capital and to have a return of 70% annually.

C) To buy stocks at a company that delivers a dividend payment of 15% and to be elected in the board and for that to receive a payment of 5 u.m/month.

Solution:

A	*B*	***C***
interest: *100*(10/100)=10 USD* *salary:* *12*5=60 USD*	*profit:* *100*(70/100)=70 USD*	*dividend:* *100*(15/100)=15 USD* *salary:* *5*12 = 60 USD*
Total gain = 70 USD	*Total gain = 70 USD*	*Total gain* ***= 75 USD***

3. By allocating the limited resource of flour a bakery can produce two goods in the next possibilities:

Possibility	1	2	3	4	5	6	7	8
Type A	0	4	8	15	20	26	34	40
Type B	20	18	16	10	8	6	4	0

Which possibility will be the chosen one?

Solution:

	1	*2*	***3***	*4*	*5*	*6*	***7***	*8*
$C_O(A)$	-	*2/4* *0,5*	*2/4* *0,5*	*6/7* *0,86*	*2/5* *0,4*	*2/6* *0,33*	***2/8*** ***0,25***	*4/6* *0,67*
$C_O(B)$	*4/2* *2*	*4/2* *2*	***7/6*** ***1,17***	*5/2* *2,5*	*6/2* *3*	*8/2* *4*	*6/4* *1,5*	-
ΣC_O	-	*2,5*	***1,67***	*3,36*	*3,4*	*4,33*	*1,75*	-

Type A:

$$C_o(2) = \frac{20-18}{4-0} = \frac{2}{4} = 0{,}5$$

(you give up at 0,5 units from B to get 1unit from A)

$$C_o(3) = \frac{18-16}{8-4} = \frac{2}{4} = 0{,}5$$

(0,5 unit. B / 1 unit from A)

…

$$C_o(8) = \frac{4-0}{40-34} = \frac{4}{6} = 0{,}67$$

(0,67 unit. B / 1 unit. A)

Type B:

$$C_o(7) = \frac{40-34}{4-0} = \frac{6}{4} = 1{,}33$$

(1,33 unit. A / 1 unit. B)

$$C_O(6) = \frac{6-4}{34-26} = \frac{2}{8} = 0{,}25$$

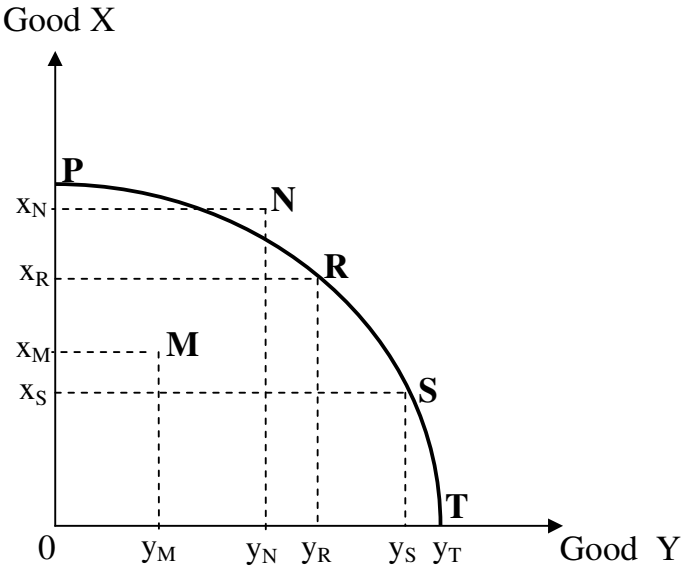
(025 unit. A / 1 unit. B)

…

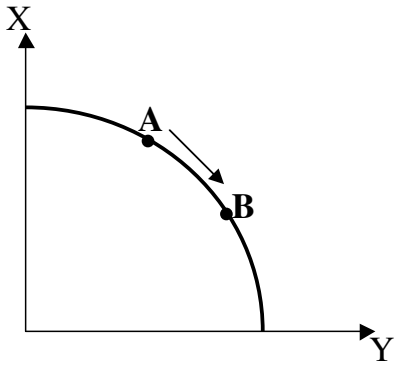
$C_O(A)$= minim for possibility 7
$C_O(B)$= minim for possibility 3
Between possibilities 7 and 3 we will prefer possibility nr. 3 because the sum of the opportunity costs is lower (1,67<1,75).

Multiple choice:

1. What is the point for which we have:
   A) Combinations of goods that cannot be produced in these conditions
   B) Combinations of goods possible to be produced but not with efficiency
   C) Combinations of goods possible to be produced with efficiency
   D) Combinations of goods possible to be produced with efficiency, and having quantities from both goods



2. Moving on the next graph from A to B on the production possibilities will determine:
   A) Increasing quantity from X and decreasing quantity from Y
   B) Increasing quantity from Y and decreasing quantity from X
   C) Increasing quantities from both goods
   D) Decreasing quantities from both goods
   E) None of the above



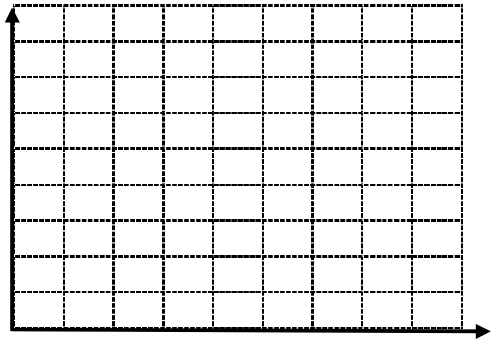
3. What about from point B to point A?

PROBLEMS TO BE SOLVED

1. The maximum quantities that can be produced from two goods are shown in the table below:

X	0	3	6	8	9
Y	80	70	50	20	0

A) Make the graphical representation of the PPF



B) What is the opportunity cost of increasing the production from X from 8 to 9 units?

C) Find the opportunity costs ans state the optimum combination

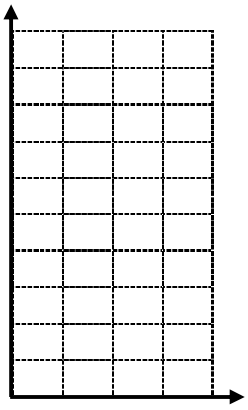
D) A combination with 50 units from Y and 2 units from X is it possible? What about 660 from Y and 6 from X?

2. The PPF is given by the next equation:

$$Y = -X^2 + 9$$

A) Make the graphical representation of the PPF

B) Search for the opportunity cost and state the optimum combination



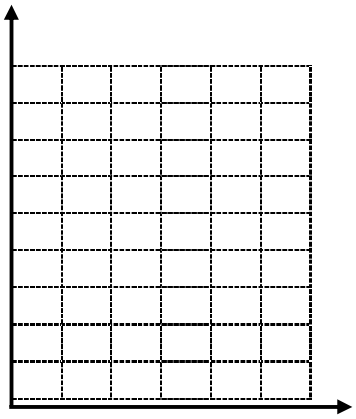
X				
Y				

C) The combination 2 units from X and 5 units from Y is it exactly on the PPF?

D) What about 2 units from X and 4 units from Y? Is this combination possible to be produced?
E) State one combination that can not be produced and one that can be produced but with no efficiency.

3. Same exercise for the next equation of PPF:

$$Y = -X^2 + 36$$



X							
Y							
