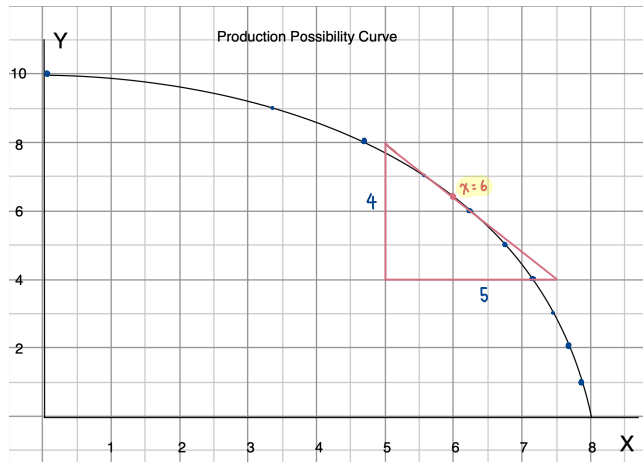


HW 2 Due Thursday, February 4, 2021

1. Nonlinear PPC



$$-\frac{4}{5} = -0.8$$

a) Find the opportunity cost of each additional unit of y in terms of units of x

y	x	Opp. Cost of y
0	8	
1	7.9	= 0.1
2	7.7	= 0.2
3	7.4	= 0.3
4	7.2	= 0.4
5	6.75	= 0.45
6	6.2	= 0.5
7	5.65	= 0.55
8	4.7	= 0.65
9	3.3	= 0.7
10	0	= 3.3

b) Yes, the opportunity cost of y is increasing as we have more and more of y

c) opp. cost of $y = 0.67$ unit of x per unit change of y
 $\frac{\Delta x}{\Delta y} = -\frac{2}{3} = -0.67$

d) Solution.

$$\begin{aligned} \text{approx} &= \text{Slope} \cdot \Delta y \\ &= -0.67 \cdot -0.2 \end{aligned}$$

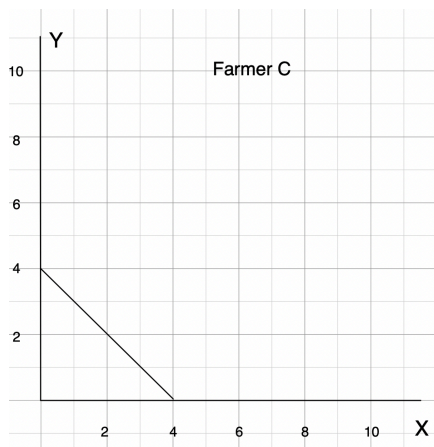
$$\text{approx. } \Delta x = 0.134$$

b) Is the opportunity cost of y increasing?

c) Compute the opportunity cost per unit of y when $x = 6$.

d) At $x = 6$, approximate how much more x can be produced if we have y less by 0.2 units.

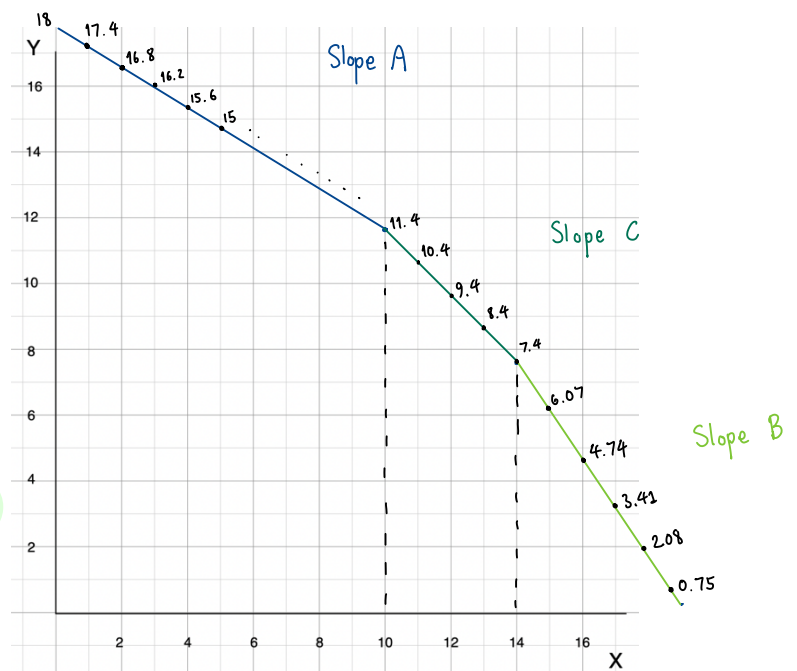
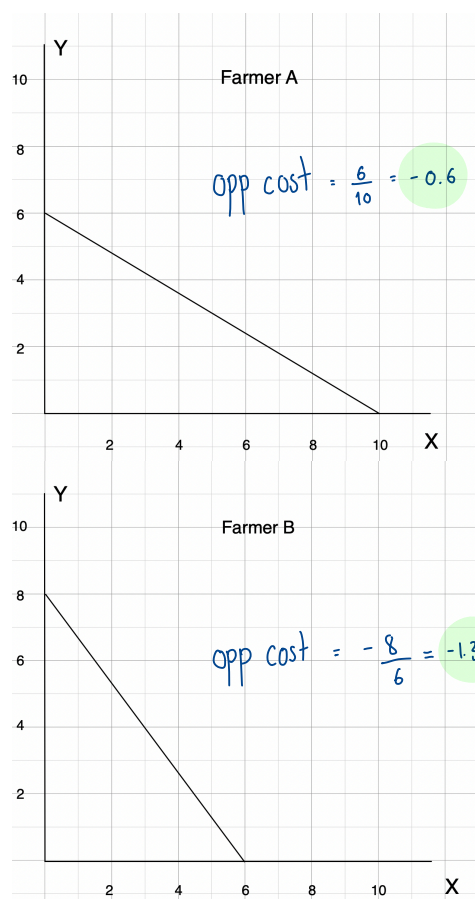
2. Farmer C has the PPC given below. Find the PPC of all three farmers A, B and C combined.



Nonlinear PPC: *Decreasing Cost PPC*

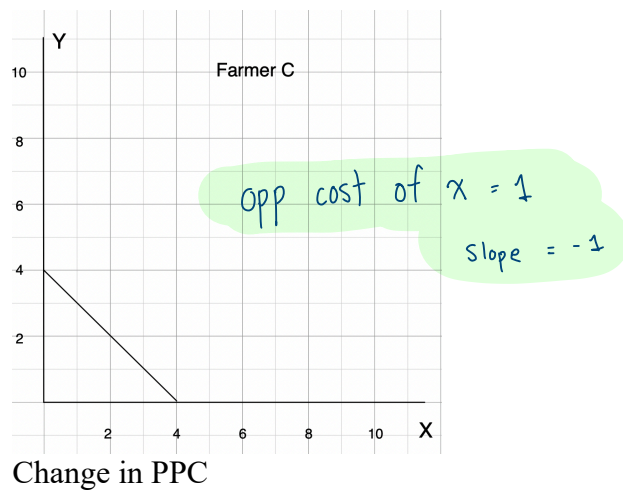
- Most PPC are Increasing Cost

Example There are two farmers A and B who produce X = rice and Y= fish, each having a constant PPC as given.



We can find the PPC of the combined resources of both farms.

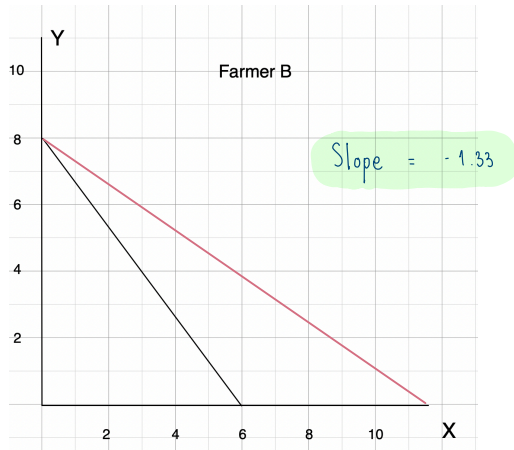
HW Farmer C has the PPC given below. Find the PPC of all three farmers A, B and C combined.



1. COVID-19

2. Improvement of Technology of producing both x and y .

HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



* opp. cost of y will be increased ↑

from 0.75 to 1.49

$$\frac{1}{1.33}$$

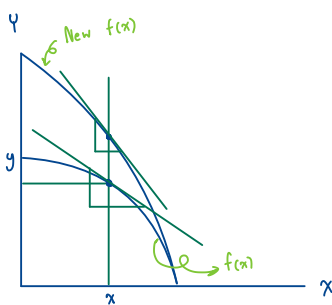
$$\frac{1}{0.67}$$

* opp. cost of x will be decreased ↓

from 1.33 to 0.67

Problem

what if technology improve production of y to be double at every output of x



- How opp. cost of x changes ?
- How opp. cost of y changes ?

Answer.

Opp. cost of x increases

Opp. cost of y decreases

✗