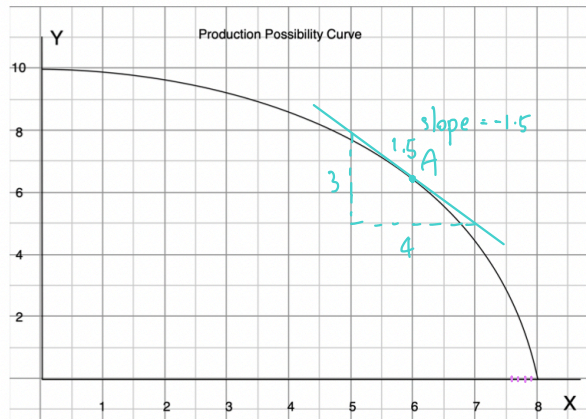


HW#4 Due Jan 27, 2022

HW Nonlinear PPC



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

y	x	Opp. Cost of y in term of x
0	8	
1	7.9	0.1
2	7.7	0.2
3	7.47	0.23
4	7.2	0.27
5	6.75	0.45
6	6.25	0.5
7	5.55	0.7
8	4.7	1.25
9	3.3	1.4
10	0	3.3

- b) Is the opportunity cost of y increasing? *Yes, the opp. cost of y is 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.

© The opp. cost per unit of y when $x = 6$

At point A slope = -1.5

$$\therefore \text{The opp. cost per unit of } y = \frac{1}{\text{slope}} = \frac{1}{1.5} = 0.67$$

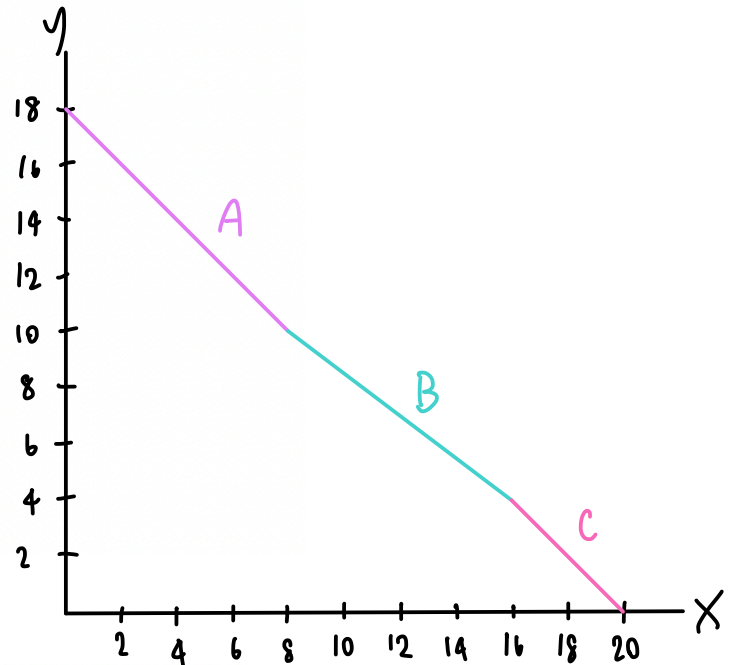
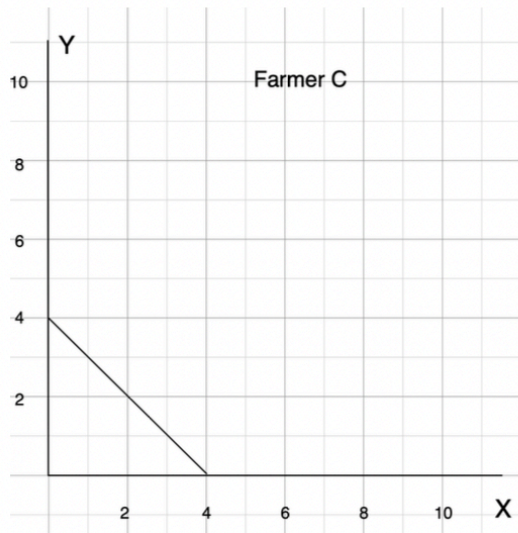
d) $\Delta y = \text{slope} \cdot \Delta x$

$$0.2 = -1.5 \Delta x$$

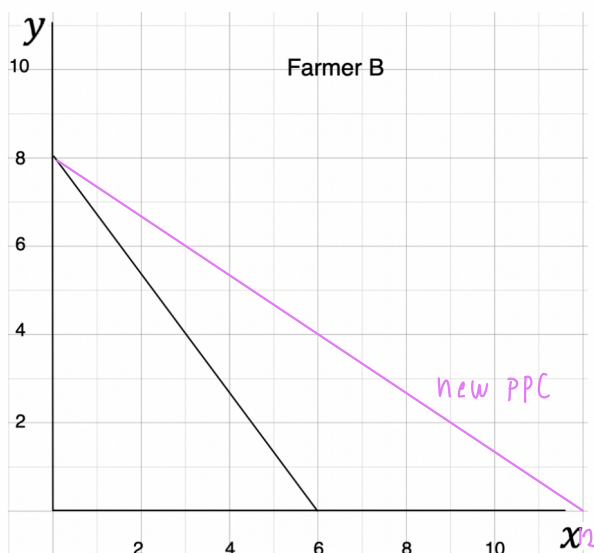
$$\Delta x = 0.13$$

\therefore if we have y less by 0.2 units we will have 0.13 units more of x .

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



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?



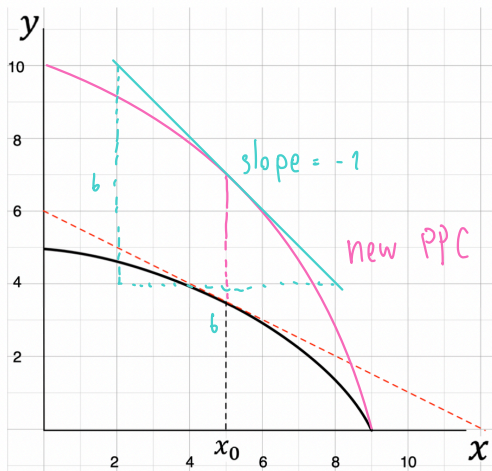
$$\begin{aligned} \text{-old opp. cost of } x &= \text{slope}_{\text{old}} = \frac{8}{6} = -1.3 \\ \text{new opp. cost of } x &= \text{slope}_{\text{new}} = \frac{8}{12} = -0.67 \end{aligned}$$

$$\begin{aligned} \text{-old opp. cost of } y &= \frac{1}{\text{slope}_{\text{old}}} = -0.75 \\ \text{new opp. cost of } y &= \frac{1}{\text{slope}_{\text{new}}} = -1.5 \end{aligned}$$

\therefore Opp. cost of x increase
but Opp. cost of y decrease

HW. Given the PPC below,

- What is the opportunity cost of x at $x_0 = 5$?
- Suppose the technology of producing y improves so that the economy can double the output of y for any output level of x . Draw the new PPC.
- What is the opportunity cost of x at $x_0 = 5$ for the new PPC?



a.) opp. cost of x at $x_0 = 5$ is $\frac{b}{12} = 0.5$

c.) opp. cost of x at $x_0 = 5$ for the new PPC is 1