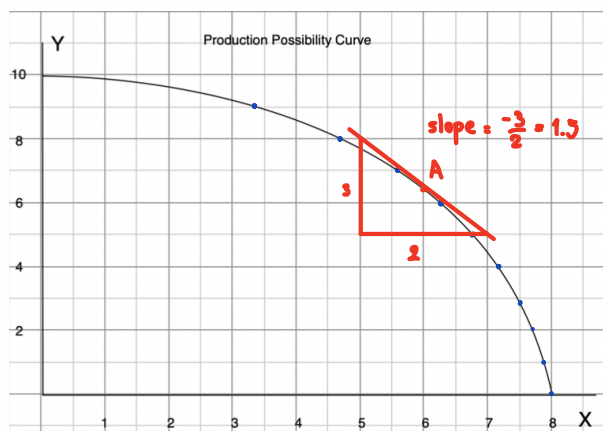


HW#4 Due Jan 27, 2022

HW Nonlinear PPC



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

x	y	Opp. cost of x
0	10	0.1
1	9.9	0.3
2	9.6	0.4
3	9.2	0.7
4	8.5	0.8
5	7.7	1.2

y	x	Opp. Cost of y
0	8	0.1
1	7.9	0.2
2	7.7	0.3
3	7.4	0.3
4	7.1	0.4
5	6.7	0.4
6	6.2	0.5
7	5.6	0.6
8	4.7	0.9
9	3.3	1.4
10	0	3.3

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

c. Opp. cost per unit of y

when $x = 6$

point A - slope = -1.5

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

$$1 = -1.5 \cdot \Delta x$$

$$\Delta x \approx 0.667$$

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

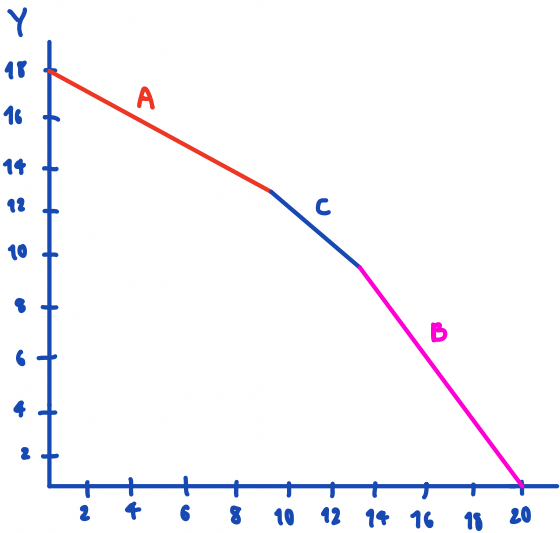
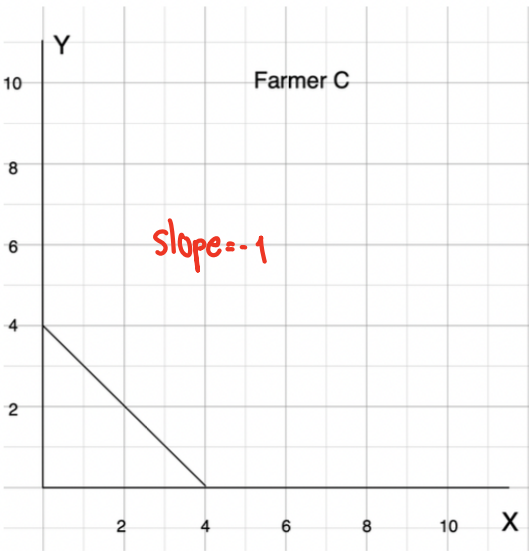
$$0.2 = -1.5 \cdot \Delta x$$

$$\Delta x \approx 0.133$$

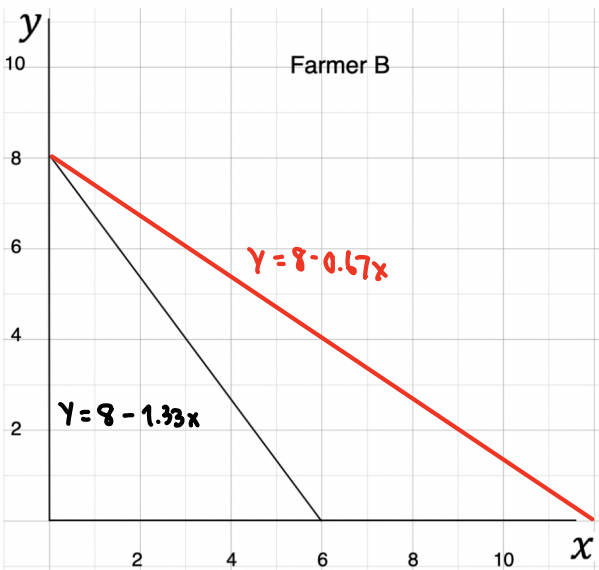
$\therefore$ If we have 0.2 units less of y

we'll 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?

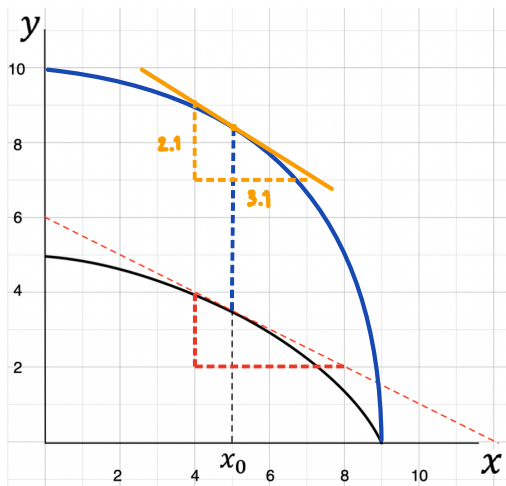


$\therefore$ Opp. cost of x decrease

$\therefore$ Opp. cost of y increase

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) x y $O_{pp. \text{ cost}}$

5 3.5 0.6

6 2.9

≈ 0.6

c) $\frac{2.1}{3.1} = 0.68$

$O_{pp. \text{ cost}} \approx 0.68$