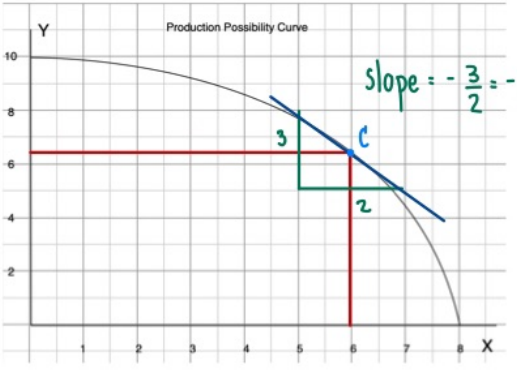
HW Nonlinear PPC



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

y	x	Opp. Cost of y
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	6.3	0.7
7	5.6	0.9
8	4.7	1.3
9	3.4	3.4
10	0	

b) Is the opportunity cost of y increasing? yes!

c) Compute the opportunity cost per unit of y when $x = 6$. at point C → $\frac{1}{\text{Slope}} = \frac{1}{-1.5} = -\frac{2}{3} = -0.67$ opp cost of y

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

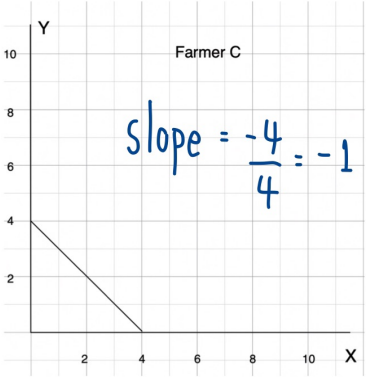
$\Delta Y = -2$

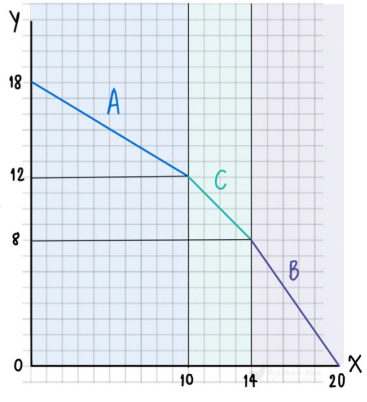
$\Delta X \approx \frac{\Delta Y}{\text{Slope at C}} \approx \frac{-0.2}{-1.5} \approx 0.13$

∴ Approximately 0.13 Unit more of x

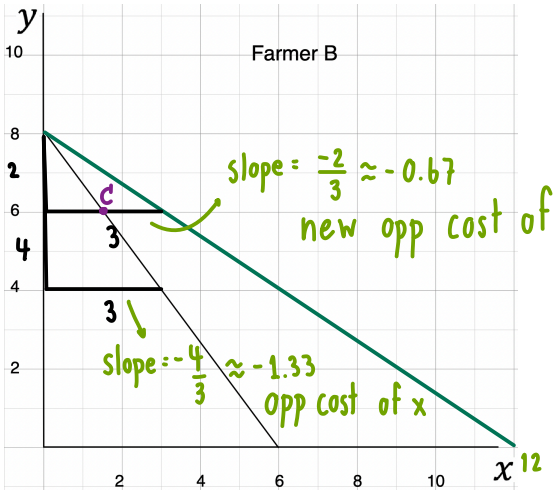
HW Farmer C has the PPC given below. Find the PPC of all three farmers A, B and C combined.

A+B+C





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?



Point c (1.5, 6) $\Delta x = 2$

$\Delta x = 2$

$\Delta Y \approx$ (slope at c) $\cdot \Delta x$

$\Delta Y \approx (-1.33) \cdot 2 \approx -2.66$

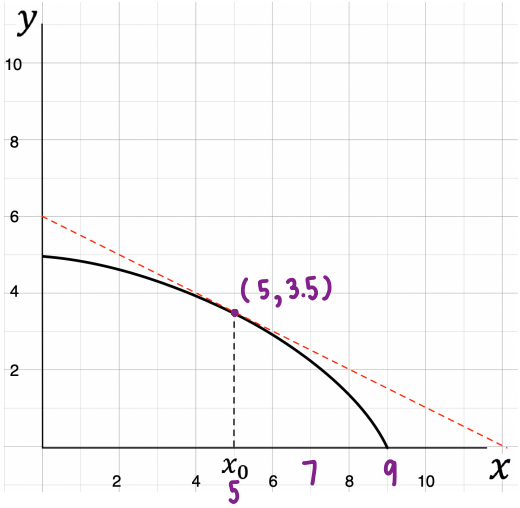
$\frac{1}{-1.33} = -0.75$ opp cost of y

$\frac{1}{-0.67} = -1.49$ opp cost of y

Hence, opp cost of x ↓
opp cost of y ↑

1 more unit of y → 0.67 less of x
1 more unit of x → 1.49 less of y

HW. Given the PPC below,
a) What is the opportunity cost of x at $x_0 = 5$?
b) 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.
c) What is the opportunity cost of x at $x_0 = 5$ for the new PPC?

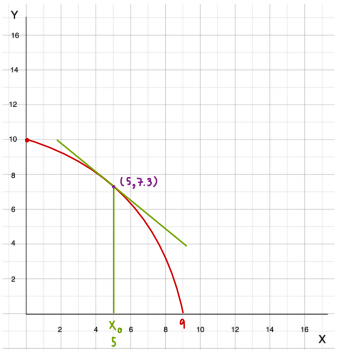


a.)

x	y	opp cost of x
4	4	
5	3.5	0.5
6	3	0.5

$x_0 \longrightarrow$ 5

b.)



c.)

x	y	opp cost of x
4	8.1	
5	7.3	0.8
6	6.4	0.9

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