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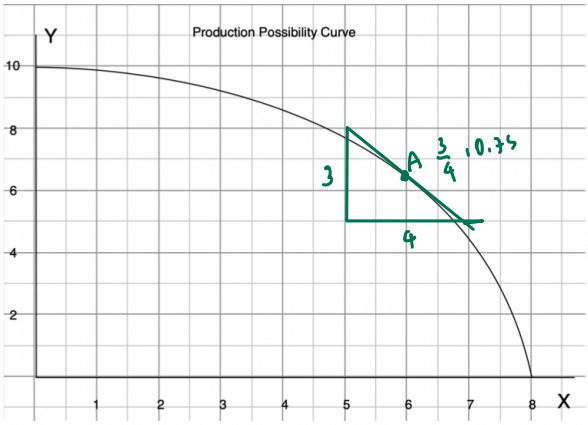
HW#4 Due Jan 27, 2022

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
0	8	0.2
1	7.8	0.2
2	7.6	0.12
3	7.48	0.28
4	7.2	0.45
5	6.75	0.5
6	6.25	0.75
7	5.5	0.9
8	4.6	1.2
9	3.4	3.4
10	0	

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.

b.) yes, the opp cost of y is increase.

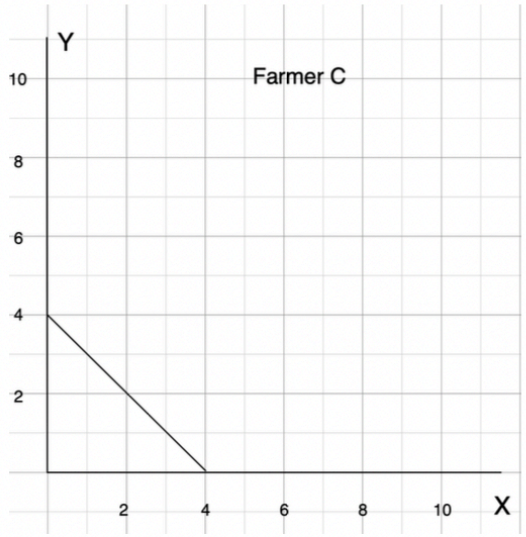
c.) At point A the opp cost per unit of y when x is equal to 6 is ≈ -0.75

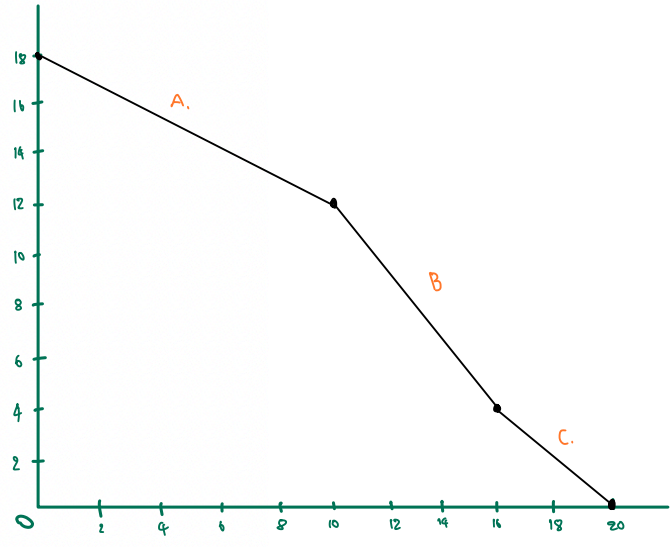
d.) $x = -0.2\,(-0.75)$

$x = 0.15$

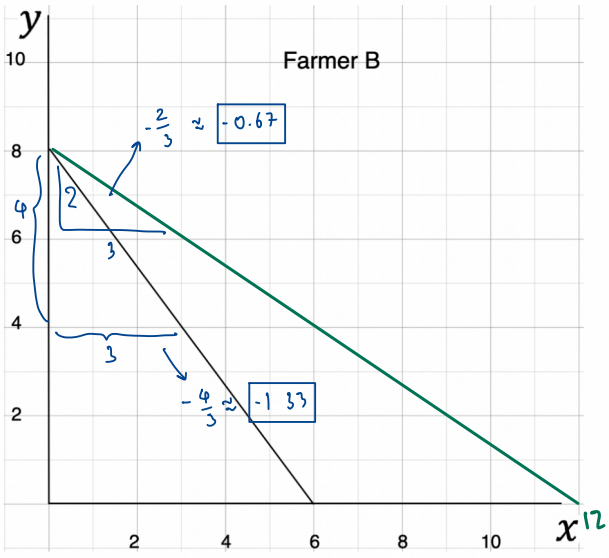
$\therefore$ there will be 0.15 more of x.

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?



ΔX

old opp of X = -1.33

new opp of x = -0.67

∴ the opp of x doesn't increase but decrease

ΔY

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

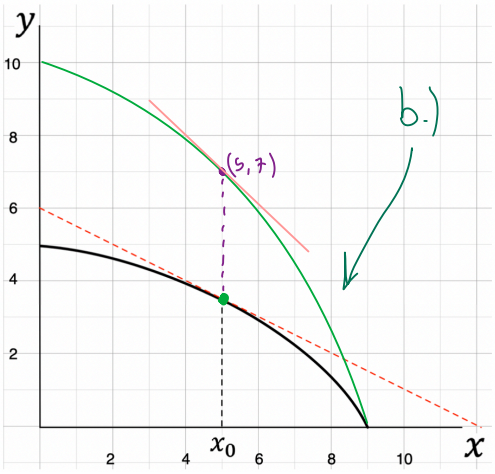
$\frac{1}{-0.67}$ = -1.49 → new opp cost of y

Old: 1 more unit of y → 0.67 less of x

new: 1 more unit of y → 1.49 less of x

∴ the opp cost of y (fish) increase.

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?



c.)

x	y	opp
4	8	]2
5	7	]1.
6	6	

a.) $-\frac{3.5}{5} = -0.7$ → opp cost of $x = 0.7$ in term of y

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