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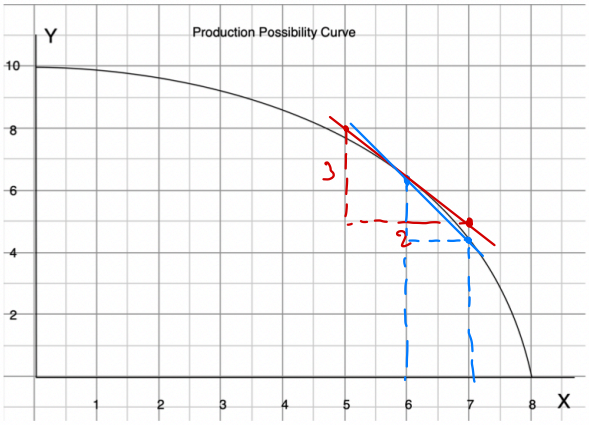
HW#4 Due Jan 27, 2022

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
1	7.8	0.2
2	7.6	0.2
3	7.4	0.2
4	7.2	0.2
5	6.7	0.5
6	6.3	0.4
7	5.6	0.7
8	4.7	0.9
9	3.3	1.4
10	0	3.3

b) Is the opportunity cost of y increasing? Yes

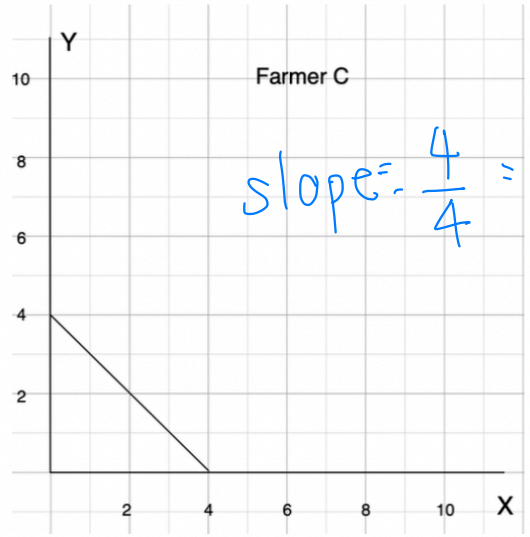
c) Compute the opportunity cost per unit of y when $x = 6$. the opportunity cost per unit of y when $x=6$ is $-\frac{3}{2} = -1.5$ ← slope

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

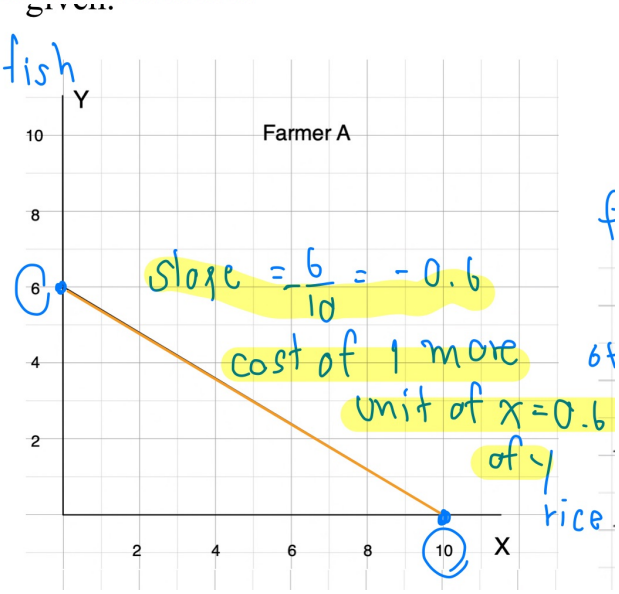
↳ we have y less by 0.2 units

$x = (-1.5)(-0.2) = 0.3$ more

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



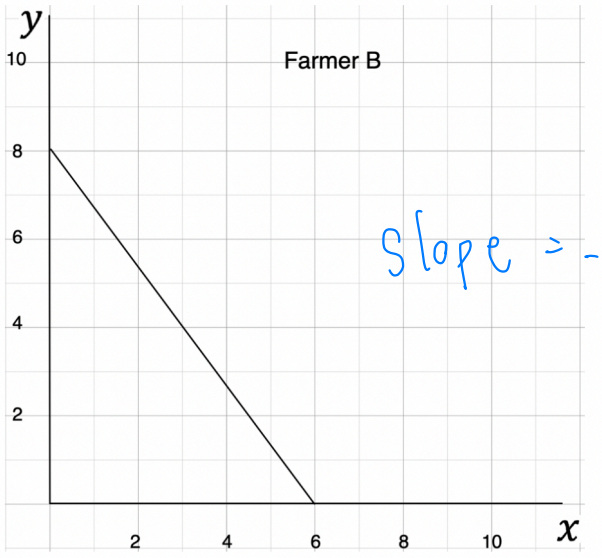
slope: $\frac{4}{4} = -1$



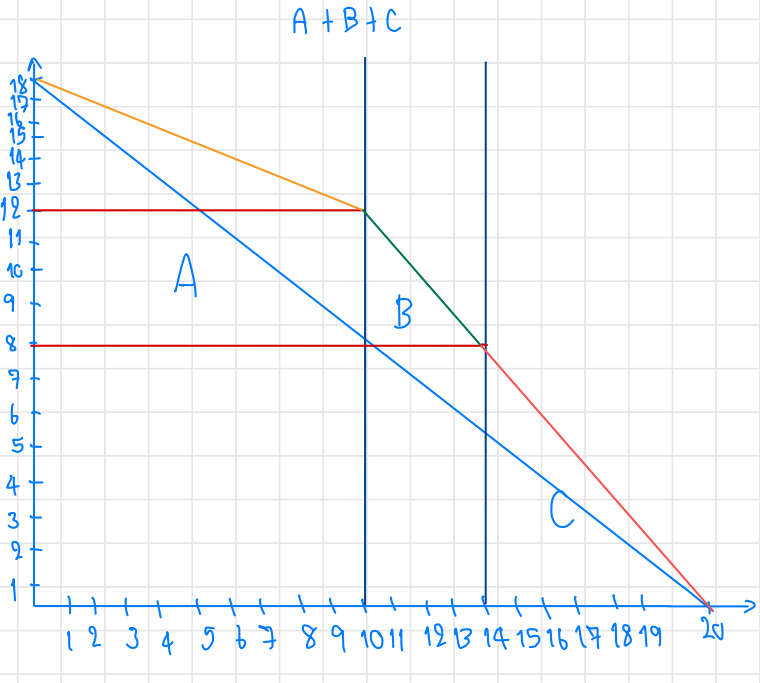
slope $= \frac{6}{10} = -0.6$

cost of 1 more unit of $x = 0.6$ of rice

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?



slope $= -\frac{8}{6} = -\frac{4}{3}$



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?

the opp cost of Y ↑

old = 1 more unit of Y
4/3 less of X

New = 1 more unit of Y
1/2 less of X

the opportunity cost of x ↑ from -1.33 to -0.66

old ⇒ 1 more unit of X, 0.66 less of Y

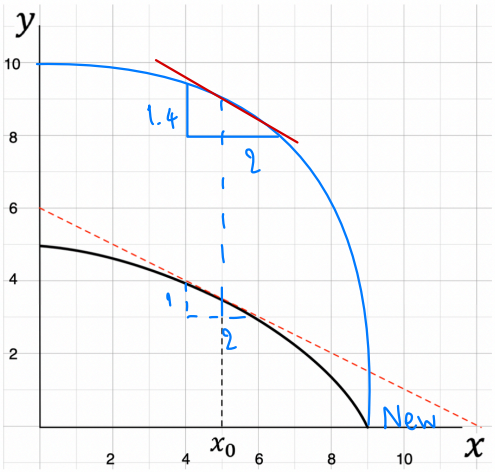
New ⇒ 1 more unit of X, 1.33 less of Y

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) slope $= -\frac{1}{2}$

b)

c) $\frac{-1.4}{2} = -0.7$