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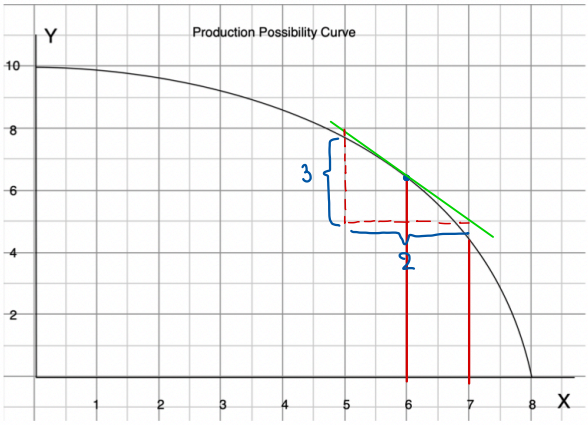
HW#4 Due Jan 27, 2022

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
1	7.9	0.2
2	7.7	0.3
3	7.4	0.2
4	7.2	0.4
5	6.8	0.5
6	6.3	0.7
7	5.6	1
8	4.6	1.2
9	3.4	3.4
10	0	0

0.1, 0.2, 0.3, 0.2, 0.4, 0.5, 0.7, 1, 1.2, 3.4

Case 9b

we have 0.1 more unit of y but has 1.33 less of x.

b) Is the opportunity cost of y increasing? Yes

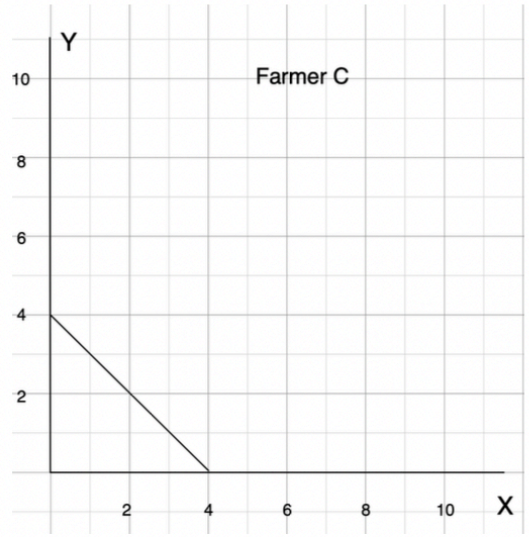
c) Compute the opportunity cost per unit of y when $x = 6$.

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

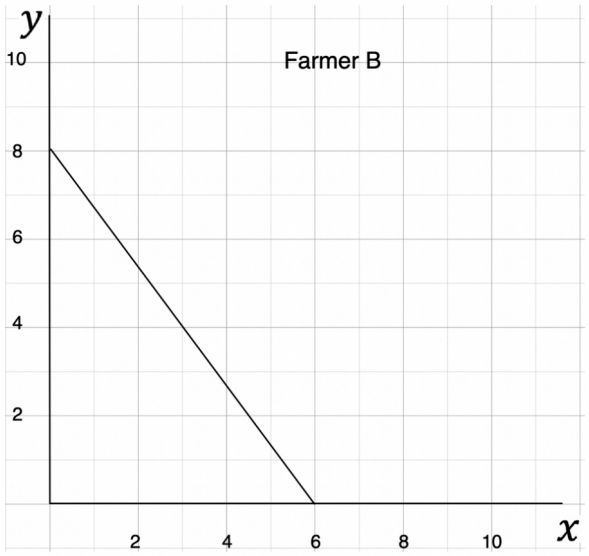
c). $x=6$ opportunity cost per unit of y is $3/2 = -1.5$

d) when we have y less by 0.2 units we has 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.



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?



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1.3

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

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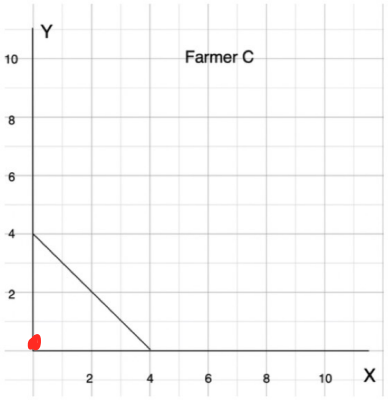
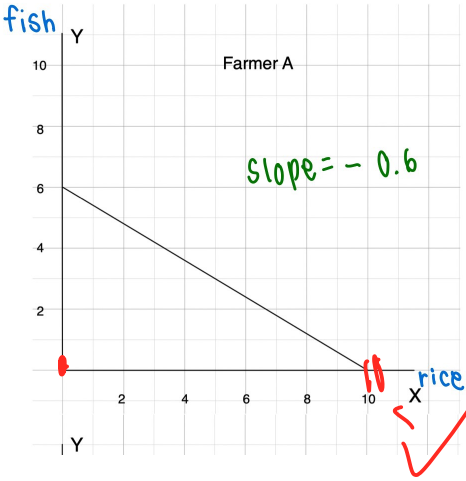


$\frac{4}{4} = -1$

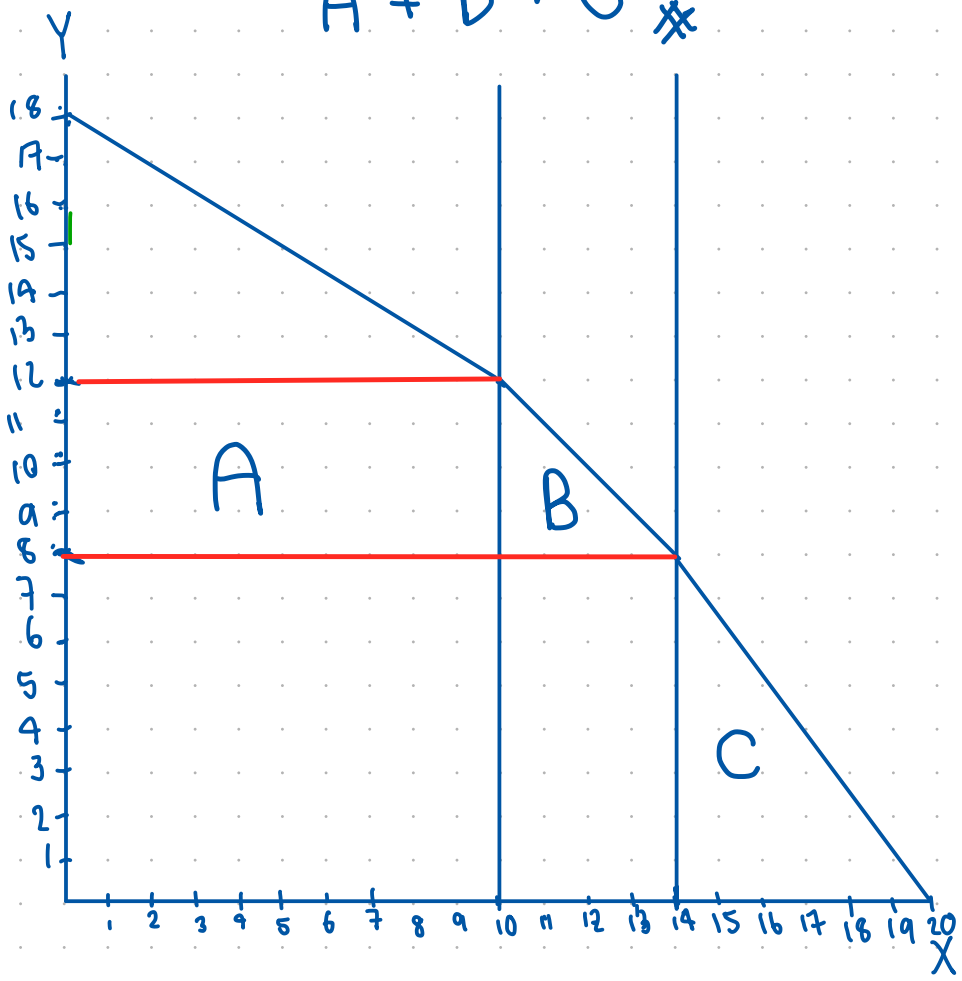


slope = − 0.6

$\frac{6}{10} - \frac{3}{5}$

rice

A + B + C *



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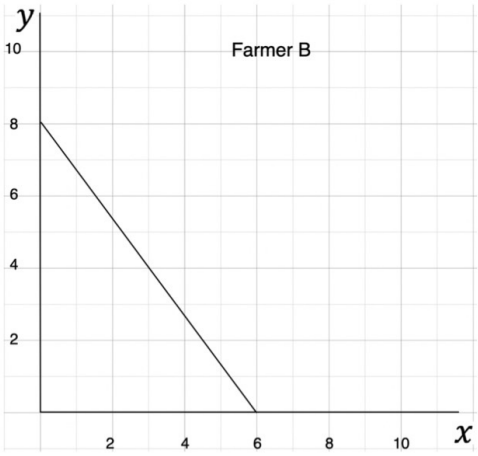
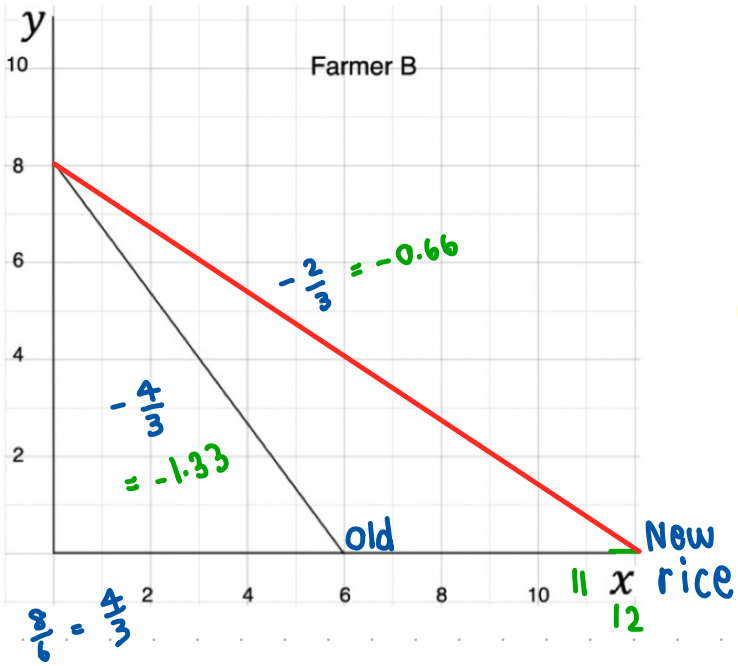


fish



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

Old equation: $y = 8 - \frac{4}{3}x$

$y - 8 = -\frac{4}{3}x$

$-\frac{3}{4}(y-8) = x$

$-\frac{3}{4}y + 6 = x$

New equation: $y = 8 - \frac{2}{3}x$

$y - 8 = -\frac{2}{3}x$

$-\frac{3}{2}(y-8) = x$

$-\frac{3}{2}y + 12$

the opportunity cost of x decrease from -1.33 to -0.66.

Old curve
1 more unit of x 0.66 less of Y

New
1 more unit of x 1.33 less of y.

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however
the OPP cost of Y↑

Old curve
1 more unit of Y $\frac{4}{3}$ less X

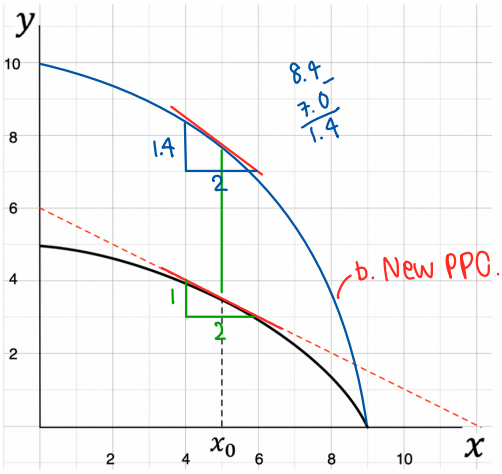
New
1 more unit of Y $\frac{3}{2}$ less of X

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?



1. $\frac{1}{2}$

b.

c. $\frac{1.4}{2} = 0.7$ ※