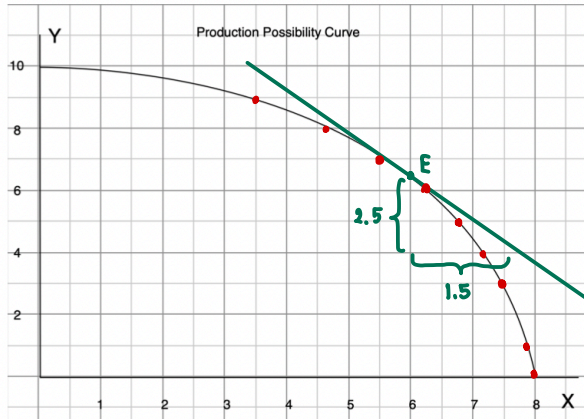


# HW#4 Due Jan 27, 2022

## HW Nonlinear PPC



$$\therefore \text{slope at point E} = -\frac{2.5}{1.5} = -1.67$$

- 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	} 8 - 7.9 = 0.1
1	7.9	
2	7.7	0.2
3	7.5	0.2
4	7.3	0.2
5	6.8	0.5
6	6.3	0.9
7	5.5	0.8
8	4.7	0.8
9	3.5	1.2
10	0	3.5

- 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

c) A+E slope is -1.67

$$\therefore \frac{1}{\text{slope}} = -\frac{1}{1.67} = -0.6$$

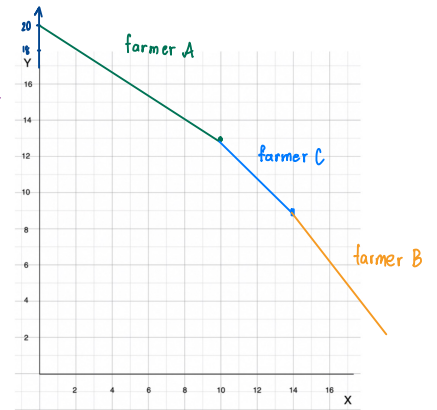
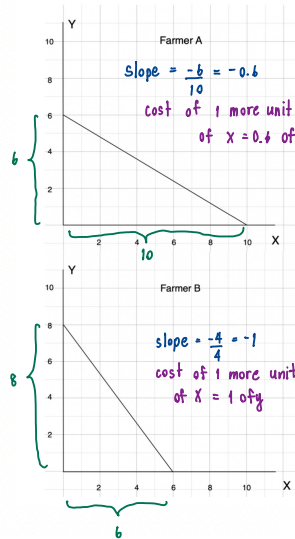
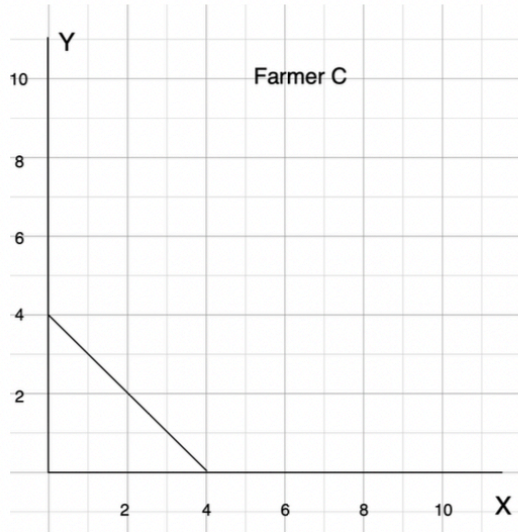
d) that means if we have 0.2 unit less of y =  $\Delta y = -0.2$

$$\text{we will have } \approx \frac{-0.2}{-0.6} = 0.33 \text{ unit more of } x$$

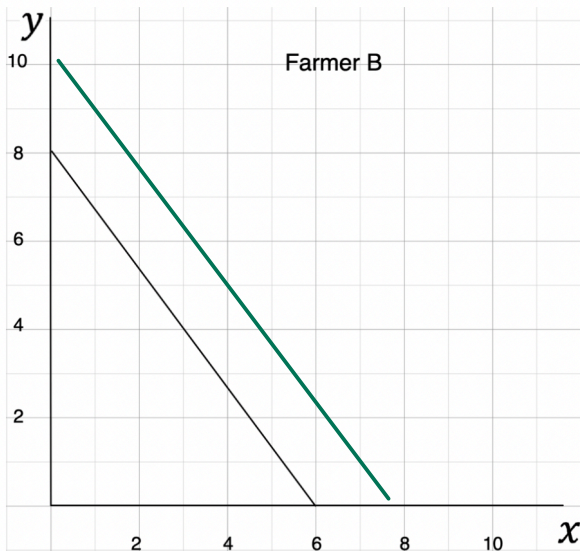
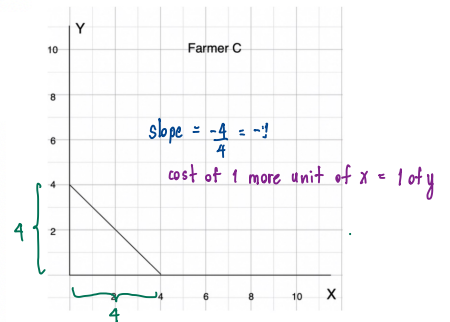
$$\frac{\Delta y}{\text{slope}}$$

X	Y
0	20
1	19.4
⋮	⋮
10	13
11	12
12	11
⋮	⋮
14	9
15	7.67
16	6.34
⋮	⋮

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



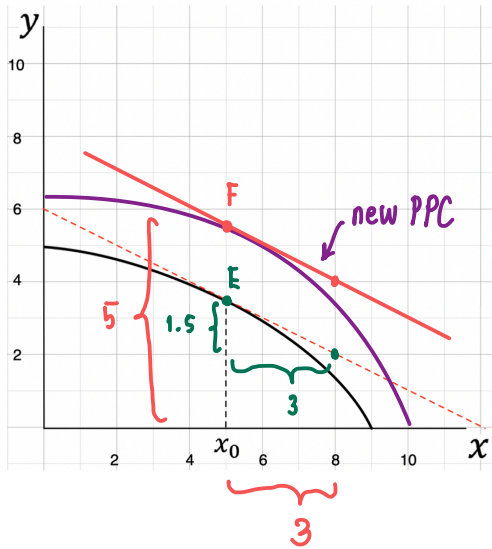
HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



No opportunity cost of x and y stay the same

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) at point E

$$\text{slope} = \frac{-1.5}{3} = -0.5$$

c) at point F

$$\text{slope} = \frac{-5}{3} = -1.67$$

≠