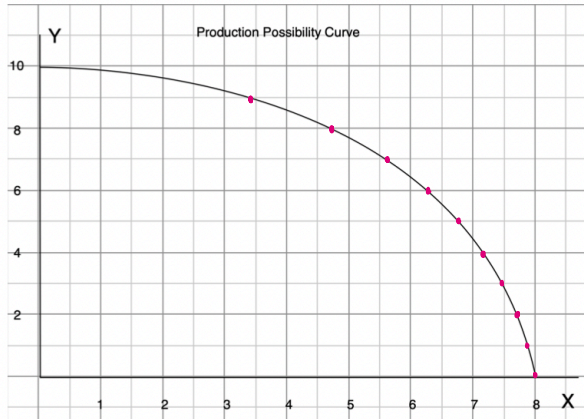


HW#4 Due Jan 27, 2022

HW Nonlinear PPC



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

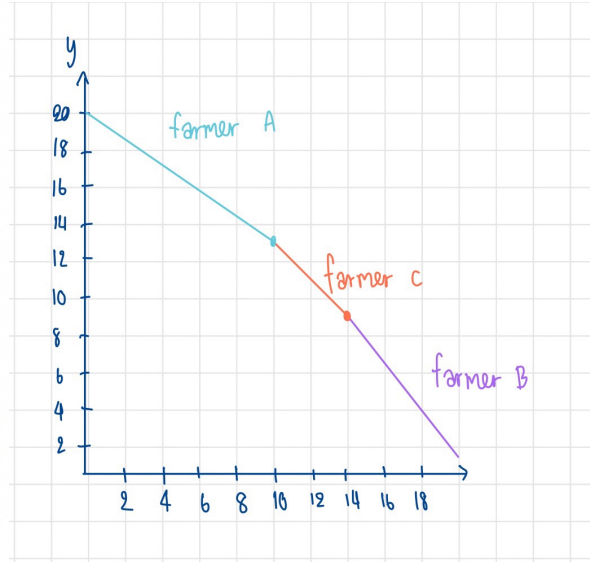
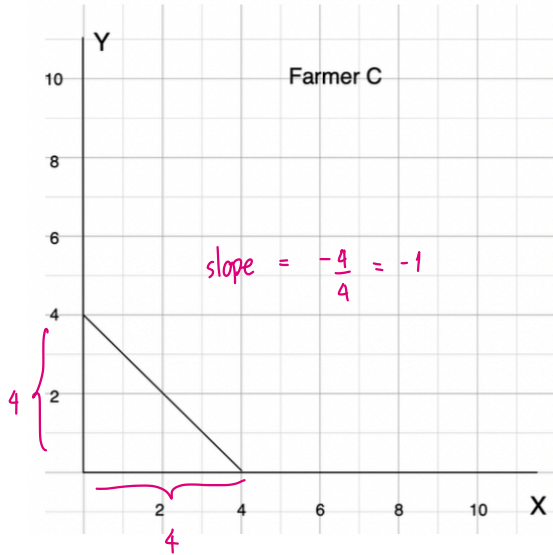
y	x	Opp. Cost of y
0	8	
1	7.9	} 0.1
2	7.7	} 0.2
3	7.5	} 0.2
4	7.2	} 0.3
5	6.8	} 0.4
6	6.3	} 0.5
7	5.5	} 0.8
8	4.7	} 0.9
9	3.4	} 1.3
10	0	} 3.4

- b) Is the opportunity cost of y increasing? *Increase*
- c) Compute the opportunity cost per unit of y when $x = 6$. $\frac{1}{\text{slope}} = \frac{1}{-1.67} = -0.6$
- d) At $x = 6$, approximate how much more x can be produced if we have y less by 0.2 units.

$$\Delta y = -0.2$$

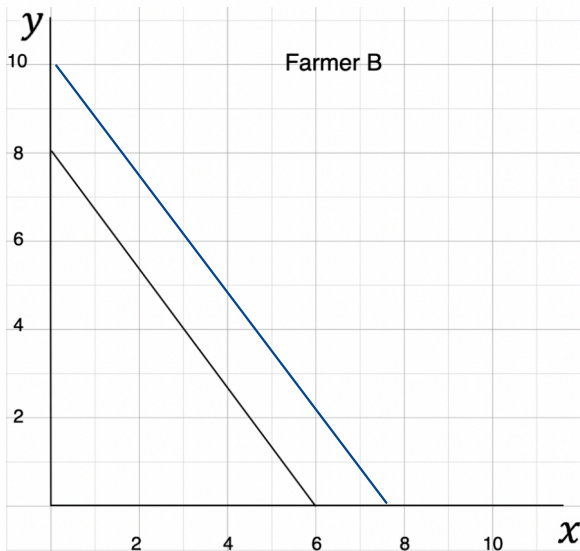
$$\frac{\Delta y}{\text{slope}} = \frac{-0.2}{-0.6} = 0.33$$

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



x	y
0	20
1	19.4
...	...
10	13
11	12
12	11
...	...
14	9
15	7.67
16	6.34
...	...

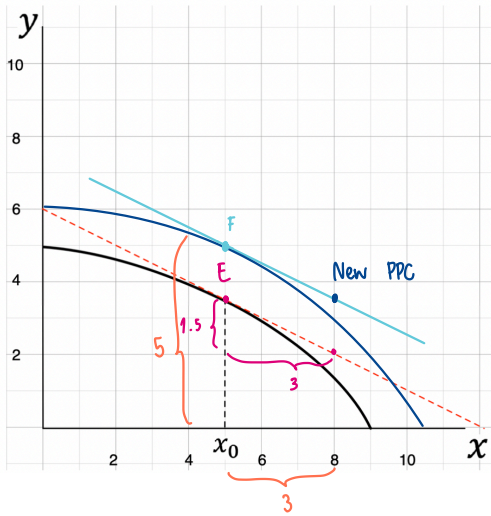
HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



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

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