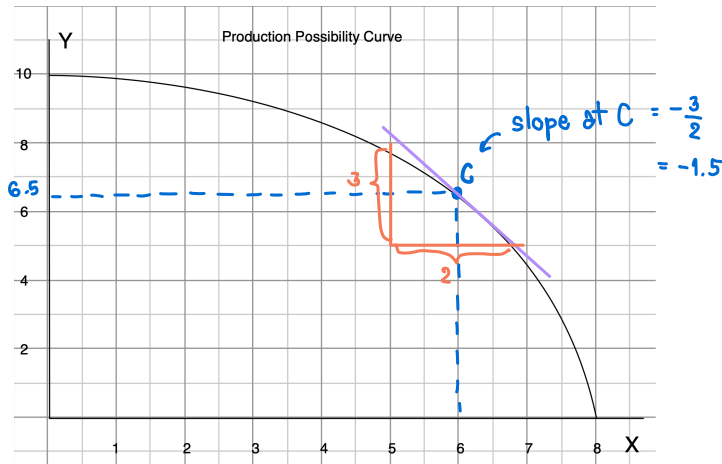


HW Nonlinear PPC



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

| y | x | Opp. Cost of y → when y increases 1 unit at a time |
|----|-----|--|
| 0 | 8 | = 0.1 less of x |
| 1 | 7.9 | = 0.2 " " |
| 2 | 7.7 | = 0.2 " " |
| 3 | 7.5 | = 0.4 " " |
| 4 | 7.1 | = 0.4 " " |
| 5 | 6.7 | = 0.4 " " |
| 6 | 6.3 | = 0.7 " " |
| 7 | 5.6 | = 0.9 " " |
| 8 | 4.7 | = 1.3 " " |
| 9 | 3.4 | = 3.4 " " |
| 10 | 0 | |

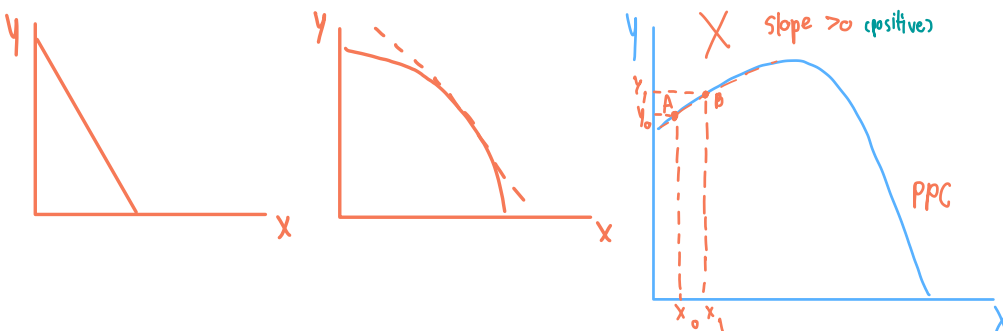
c) $\frac{1}{\text{slope}} = \frac{1}{-1.5} \approx -\frac{2}{3} \approx -0.67$

- b) Is the opportunity cost of y increasing? **yes**
- c) Compute the opportunity cost per unit of y when x = 6. at point C
- d) At x = 6, approximate how much more x can be produced if we have y less by 0.2 units.

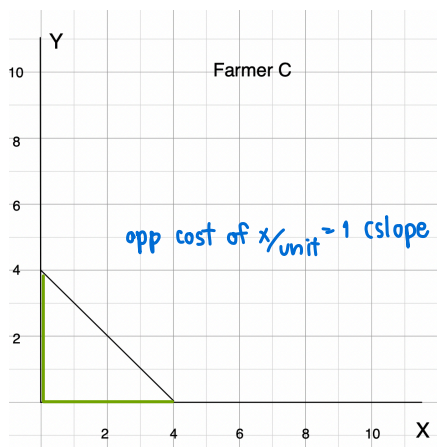
d) $\Delta y = -0.2$
 $\Delta y \approx (\text{slope at C}) \cdot \Delta x \Rightarrow \Delta x \approx \frac{\Delta y}{\text{slope at C}}$
 $\approx \frac{-0.2}{-1.5}$
 ≈ 0.13

∴ approx. 0.13 unit more of X

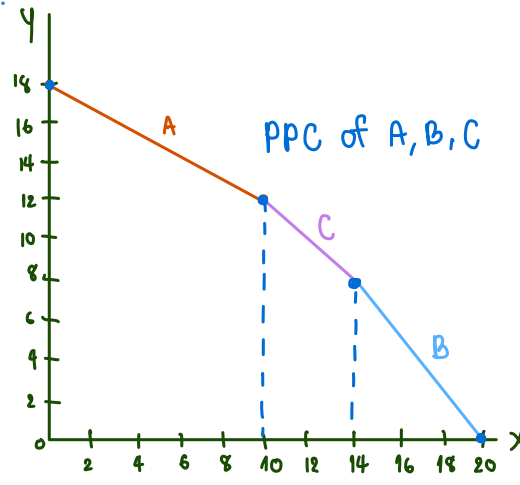
Can a PPC have positive slope?



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

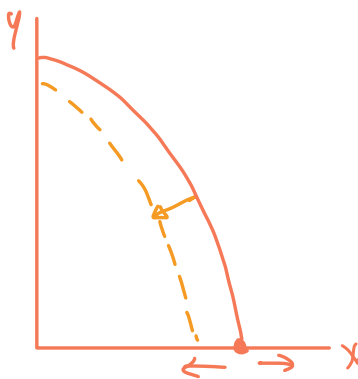


Change in PPC - fix resources, fix technology, most efficient

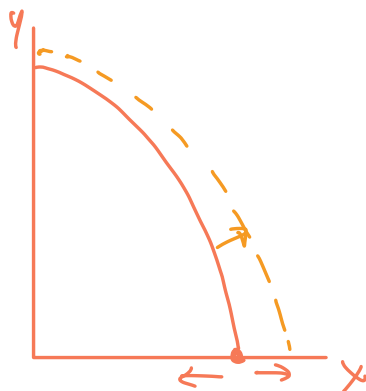


| x | y |
|-----|------|
| 0 | 18 |
| 1 | 17.4 |
| 2 | 16.8 |
| ... | ... |
| 10 | 12 |
| 11 | 11 |
| 12 | 10 |
| 13 | 9 |
| 14 | 8 |
| 15 | 6.67 |
| 16 | 5.33 |
| ... | ... |
| 20 | 0 |

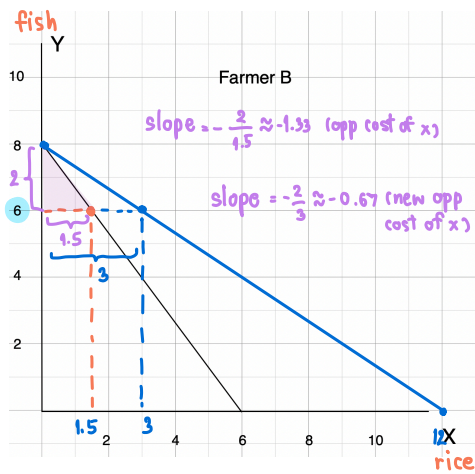
1. COVID-19



2. Improvement of Technology of producing both x and y.



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?



At C (1.5, 6), $\Delta x = 2$

$$\Delta y \approx (\text{slope at C}) \cdot \Delta x$$

$$\approx (-1.33)(2)$$

$$\approx -2.66$$

$$\frac{1}{\text{slope}} = \frac{1}{-1.33} = 0.75 \leftarrow \text{Opp cost of } y$$

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

\therefore The opp cost of x decrease,
the opp cost of y increase

1 more unit of $y \Rightarrow 0.67$ unit less of x
1 more unit of $x \Rightarrow 1.49$ units less of y