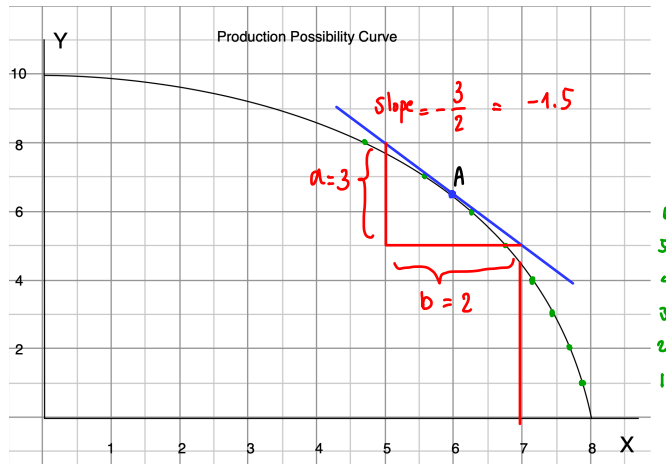


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HW Nonlinear PPC



- 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	= 0.3
4	7.1	= 0.4
5	6.7	= 0.5
6	6.2	= 0.6
7	5.6	= 0.9
8	4.7	= 1.3
9	3.4	= 3.4
10	0	

- when y increases 1 unit at a time

- 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) The opportunity cost of y increase as we are more and more of x

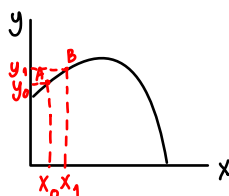
(c) opp. cost per unit of y in term of x = $\frac{1}{\text{slope}} = \frac{1}{-1.5} = -0.67$

(d) At A : $\Delta y = -0.2$ less of y
(6, 6.5) $\Delta x \approx -0.67 (-0.2)$
 ≈ 0.134

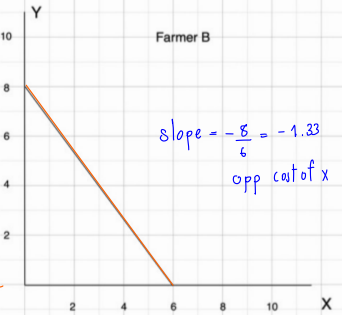
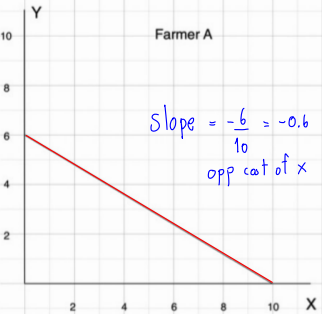
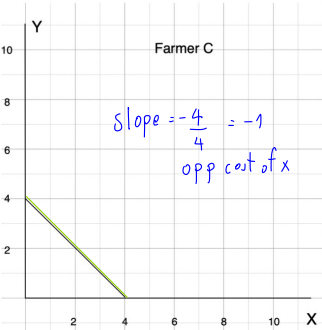
∴ if y decreases by 0.2 units we have 0.137 units more of x (approximately)

Can a PPC have positive slope?

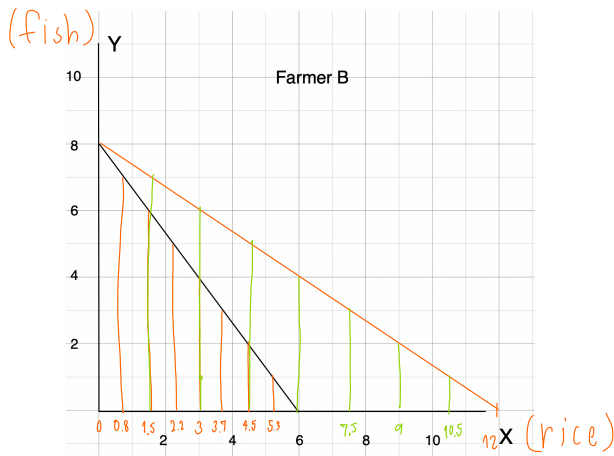
Cannot have positive slope



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?



fish	old rice	new rice
0	6	12
1	5.3	10.5
2	4.5	9
3	3.7	7.5
4	3	6
5	2.2	4.5
6	1.5	3
7	0.8	1.5
8	0	0

$$(1) \text{ old opp cost of } x \text{ in farm B} = \frac{8}{6} \quad (\text{slope} = -\frac{8}{6}) \quad \nearrow = 1.33$$

$$\text{new opp cost of } x \text{ in farm B} = \frac{8}{12} \quad (\text{slope} = -\frac{8}{12}) \quad \nearrow = 0.67$$

$\therefore$ opp cost of x in farm B decreases from 1.33 to 0.67

$$(2) \text{ old opp cost of } y \text{ in farm B} = \frac{6}{8} \quad (\text{slope} = -\frac{6}{8}) \quad \nearrow = 0.75$$

$$\text{new opp cost of } y \text{ in farm B} = \frac{12}{8} \quad (\text{slope} = -\frac{12}{8}) \quad \nearrow = 1.5$$

$\therefore$ opp cost of y in farm B increases from 0.75 to 1.5