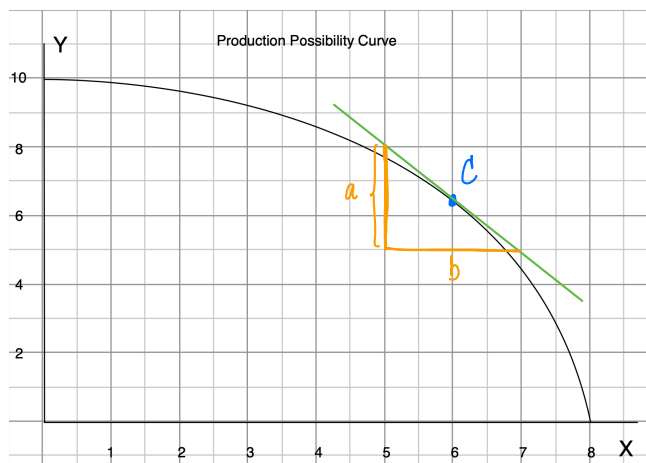


HW 2 Due Thursday, February 4, 2021
1. Nonlinear PPC



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

Note

⇒ These values (x, y) are approximated from the graph.

y	x	Opp. Cost of y
0	8	0.1 less of x
1	7.9	0.15
2	7.75	0.25
3	7.5	0.3
4	7.2	0.45
5	6.75	0.5
6	6.25	0.7
7	5.55	0.95
8	4.6	1.2
9	3.4	3.4
10	0	

b) Yes, it's increasing according to the table constructed.

c) Slope at point c $(\frac{\Delta y}{\Delta x}) = -\frac{a}{b} = -\frac{0.2}{0.132} = -1.5$

This is the cost of y in term of x

∴ $\frac{1}{\text{Slope}} = \frac{\Delta x}{\Delta y} = -\frac{1}{1.5} = -0.66$ (cost of x in term of y)

∴ At x = 6, 0.66 unit of x must be sacrificed in exchange of one unit of y.

d) $\frac{\Delta x}{\Delta y} = -0.66 \Rightarrow \Delta x = -0.66 \Delta y \Rightarrow \Delta x = -0.66(-0.2) = 0.132$

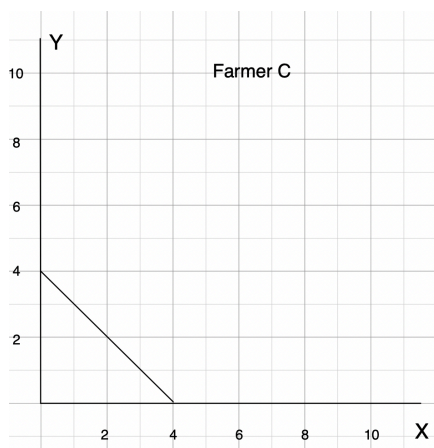
∴ At x = 6, if we have y less by 0.2 units, we would be able to produce 0.132 unit of x.

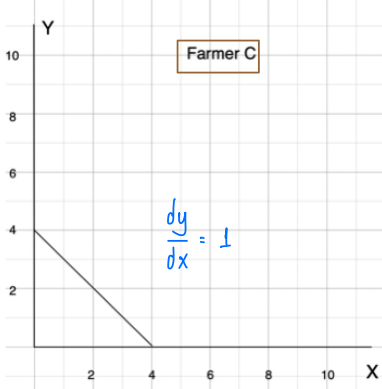
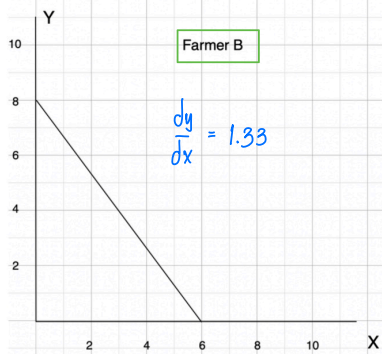
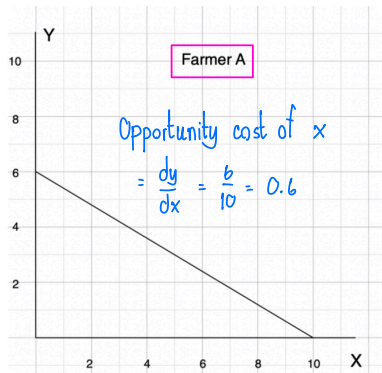
b) Is the opportunity cost of y increasing?

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.

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





Total amount of y that can be produced
 $= 6 + 8 + 4 = 18$

Total amount of x
 $= 10 + 6 + 4 = 20$

PPC of 3 farmers combined.

