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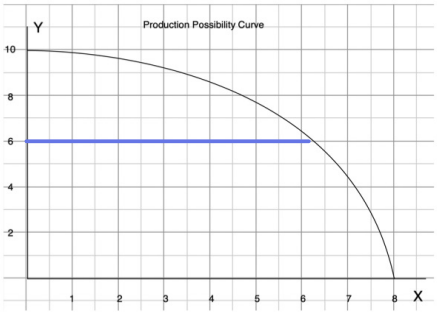
HW Nonlinear PPC



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

y	x	Opp. Cost of y → when y increases 1 unit at a time
0	8	
1	7.9	0.1 less of x
2	7.7	0.2 "
3	7.4	0.3 "
4	7.1	0.3 "
5	6.7	0.4 "
6	6.3	0.4 "
7	5.6	0.7 "
8	4.7	1.9 "
9	2.4	1.3 "
10	0	2.4 "

b) Is the opportunity cost of y increasing? Yes

c) Compute the opportunity cost per unit of y when $x = 6$. at C

d) At $x = 6$, approximate how much more x can be produced if we have y less by 0.2 units.

c) Slope at C $= -\frac{3}{2}$

$\therefore$ Opp cost of y $= \frac{1}{-\frac{3}{2}} = -\frac{2}{3} = 0.67$ ※

d) $\Delta y = -0.2$

$\Delta x = \frac{\Delta y}{\text{Slope at C}} = \frac{-0.2}{-\frac{3}{2}} = 0.13$ unit more of x ※

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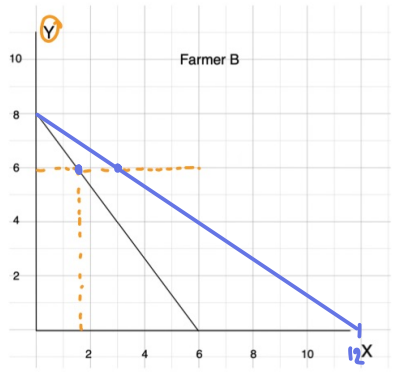
HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



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

$\Delta y \approx$ (slope of C) $\cdot \Delta x$

$\approx \left(-\frac{2}{15}\right)(2)$

≈ -2.66

$\frac{1}{-\frac{2}{15}} = -0.75$ — opp cost of y

$\frac{1}{-\frac{2}{3}} = -1.49$ — new opp cost of y

∴ The opp cost of x decrease, but the opp cost of y increases.

1 more unit of y ⇒ 0.67 unit less of x

1 more unit of x ⇒ 1.49 unit less of y

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