

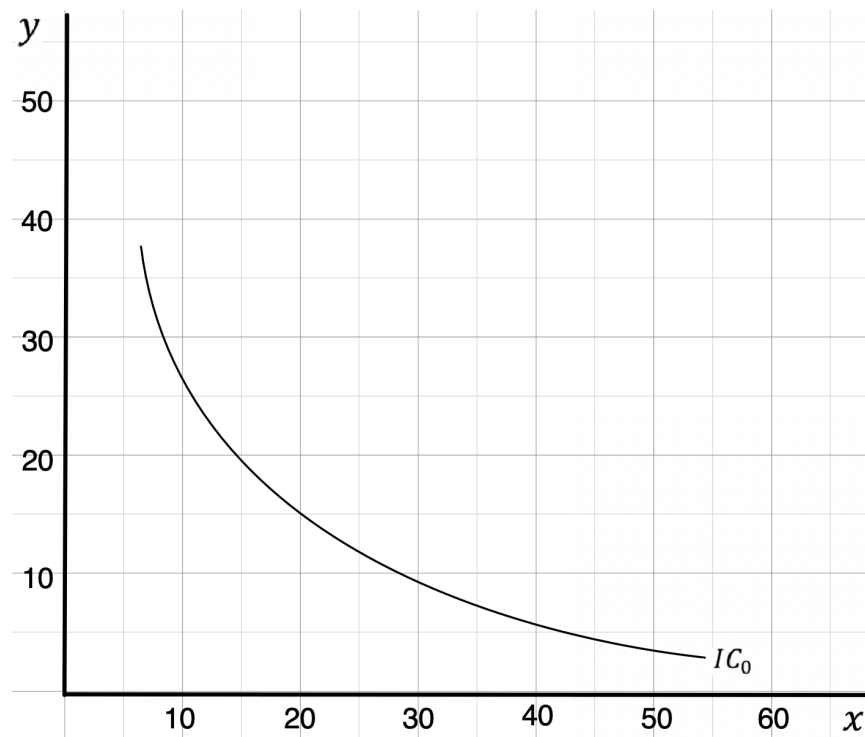
#1

12. Five consumers have the following marginal utility of apples and pears:

	Marginal Utility of Apples	Marginal Utility of Pears
Claire	6	12
Phil	6	6
Haley	6	3
Alex	3	6
Luke	3	12

The price of an apple is \$1, and the price of a pear is \$2. Which, if any, of these consumers are optimizing their choices of fruit? For those who are not, how should they change their spending?

#2 Given the price of $x = 3$, price of $y = 4$, and budget = 120.



- Draw the budget line and find the equilibrium with the given indifference curve IC in the diagram below.
- If the income increases from 120 to 150, where will be the new equilibrium so that the change in the consumption of x be such that the Income Elasticity of x is equal to 1.
- With the change of equilibrium you found in (B), what will be the Income Elasticity of y ?

#1

Pimthida Thavatasukha

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12. Five consumers have the following marginal utility of apples and pears:

	Marginal Utility of Apples	Marginal Utility of Pears	$\frac{MU_X}{P_X}$	$\frac{MU_Y}{P_Y}$
Claire	6	12	6	6
Phil	6	6	6	3
Haley	6	3	6	1.5
Alex	3	6	3	3
Luke	3	12	3	6

The price of an apple is \$1, and the price of a pear is \$2. Which, if any, of these consumers are optimizing their choices of fruit? For those who are not, how should they change their spending?

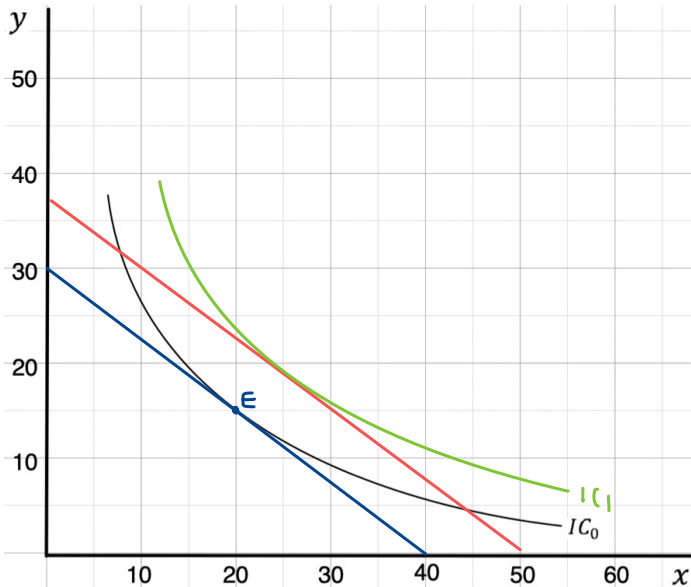
$$\frac{MU_X}{MU_Y} = \frac{P_X}{P_Y} \rightarrow \frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$$

- Claire and Alex has optimized their choice as $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$.
- Phil and Haley should buy more apples because apple gives them more utility than pear.
- Luke should buy more pear because pear gives him more utility than apple.

#2 Given the price of $x = 3$, price of $y = 4$, and budget = 120.

Pimthida Thavatasutha

6304641084



A) Draw the budget line and find the equilibrium with the given indifference curve IC in the diagram below.

B) If the income increases from 120 to 150, where will be the new equilibrium so that the change in the consumption of x be such that the **Income Elasticity of x is equal to 1**.

C) With the change of equilibrium you found in (B), what will be the Income Elasticity of y ?

a) $3x + 4y = 120$

Equilibrium (20, 15)

x -intercept = 40

y -intercept = 30

b) $3x + 4y = 150$

x -intercept = 50

y -intercept = 37.5

Elasticity of $x = \frac{\% \Delta x}{\% \Delta I} = 1$

$= \frac{\% \Delta x}{\frac{150-120}{120} \cdot 100} = 1$

$= \frac{\% \Delta x}{0.25} = 1$

$\% \Delta x = 1 \cdot 0.25$

$\Delta x = 25\%$

from 20 to $20 \times 1.25 = 25$

Therefore, the new equilibrium is (25, 18.75)

$$\begin{aligned} \text{c) Elasticity of } y &= \frac{\% \Delta Y}{\% \Delta I} \\ &= \frac{\frac{18.75 - 15}{15}}{0.25} \\ &= 1 \end{aligned}$$

$\therefore$ the income elasticity of y equal to 1

Pimthida Thavakasuttha

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