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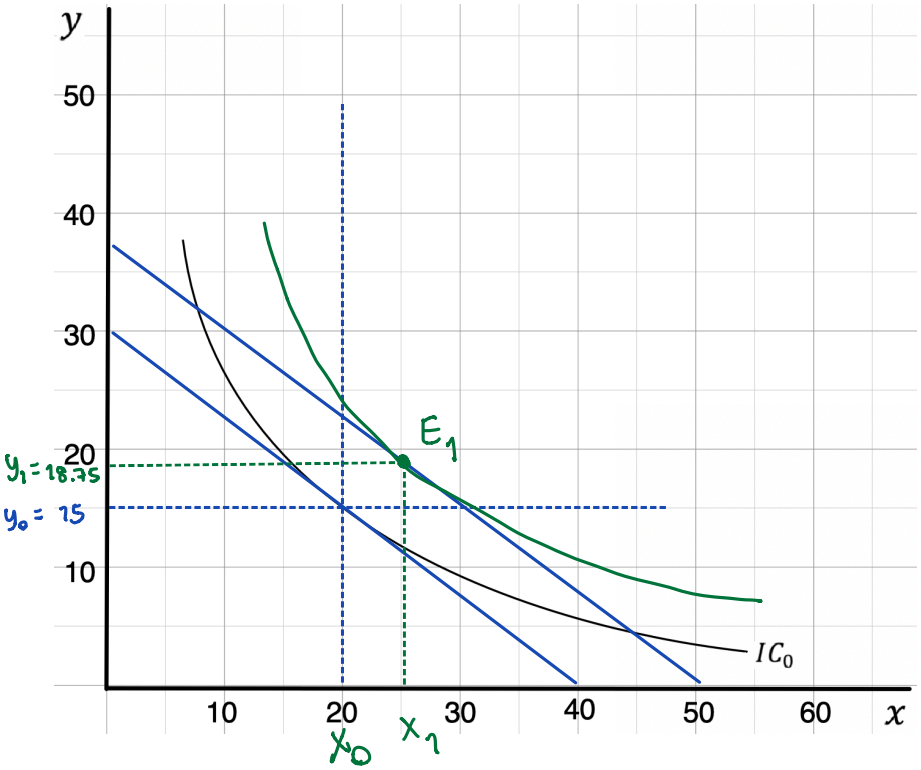
#1

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

	Marginal Utility of Apples (x)	Marginal Utility of Pears (y)	$\frac{MU_x}{P_x}$	$\frac{MU_y}{P_y}$
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?

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



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?

① From $\frac{Mu_x}{Mu_y} = \frac{P_x}{P_y}$

$\frac{Mu_x}{P_x} = \frac{Mu_y}{P_y}$

From the table, we can conclude that Clair and Alex had optimized their choices already.

- Phil and Haley should buy more apples because it is giving more utility per one unit price.
- Luke should buy more pears because it is giving more utility.

② A) $3x + 4y = 120$

at $x = 0$, $y = \frac{120}{4} = 30$

at $y = 0$, $x = \frac{120}{3} = 40$

B) $3x + 4y = 150$

when $x = 0$, $y = \frac{150}{4} = 37.5$

when $y = 0$, $x = \frac{150}{3} = 50$

$\eta_I^x = \frac{\%\Delta x}{\%\Delta I} = 1$

$1 = \frac{\%\Delta x}{(150-120)/120}$

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

$0.25 = \Delta x$

x increased by 25%

from 20 to $20 \times 1.25 = 25$ #

Therefore the equilibrium is at (25, 18.75)

C) At the new equilibrium $(x_1, y_1) = (25, 18.75)$

$\eta_I^y = \frac{\%\Delta y}{\%\Delta I} = \frac{(18.75 - 15)/15}{0.25} = 1$ #

The income Elasticity of y is also equal to 1.