

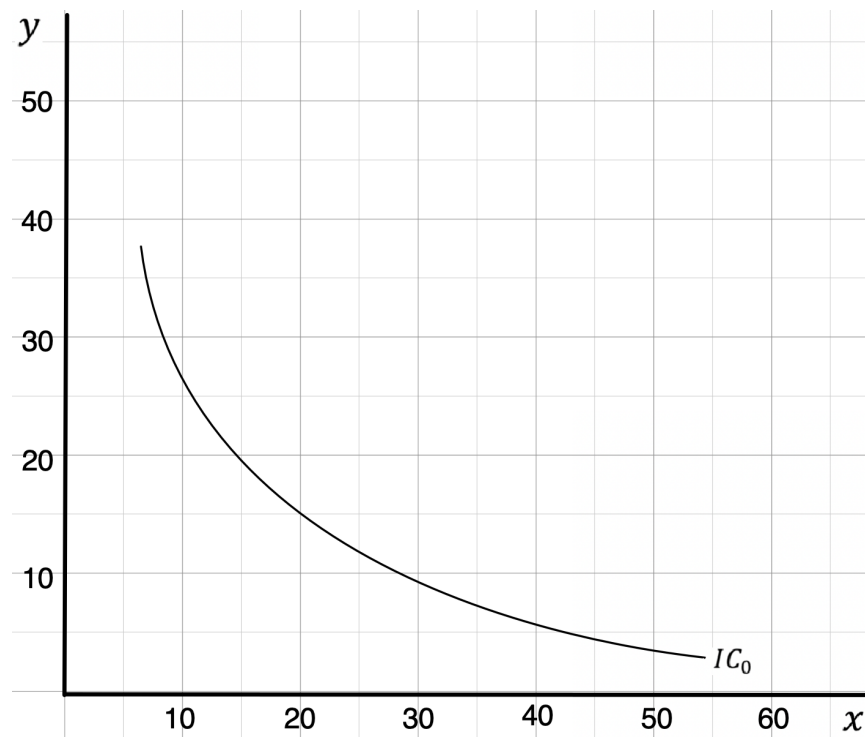
#1

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 ?

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?

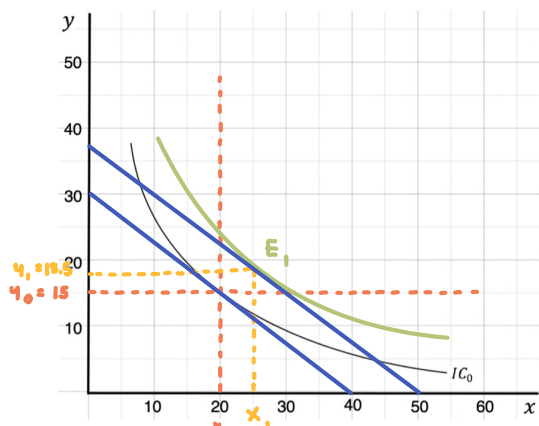
From $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

According to the table, we can see that Claire and Alex had optimized their choices already.

- Phil and Haley should buy more Apples because more utility per one unit price.
- Luke should buy more pear because it's giving more utility.

#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_0 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) $3x + 4y = 120$

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

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

B) $3x + 4y = 150$

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

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

$$\eta_x = \frac{\% \Delta x}{\% \Delta I} = 1$$

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

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

$$0.25 = \Delta 0.25$$

C) At new eq. $(x_1, y_1) \rightarrow (25, 18.75)$

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

income Elasticity of y is also
 $= 1$

x increased by 25%
 from 20 to $20 \times 1.25 = 25$
 eq is $(25, 18.75)$