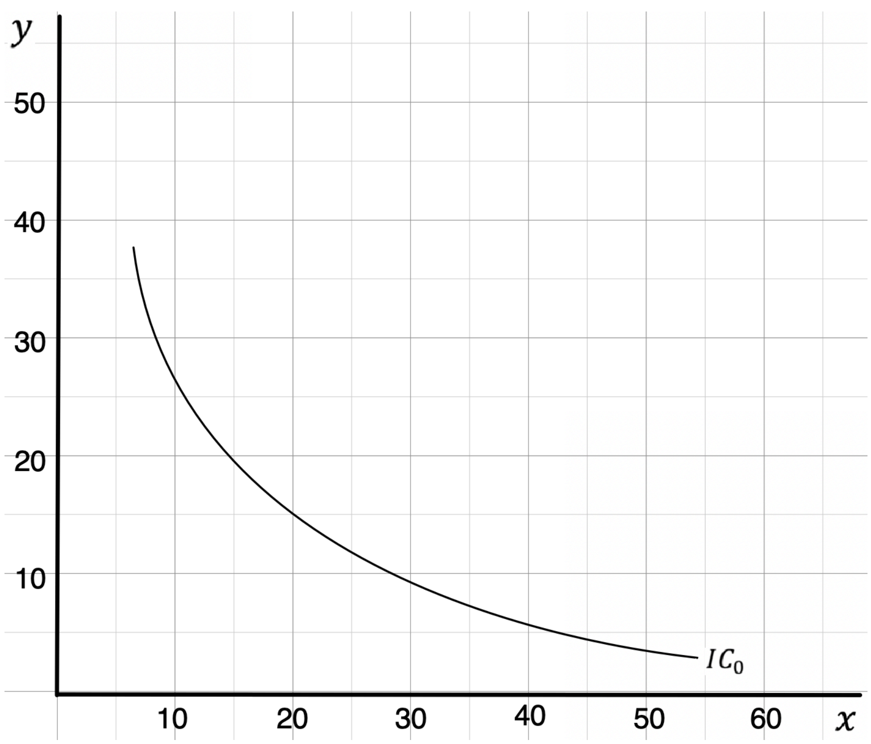
#1

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.



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?

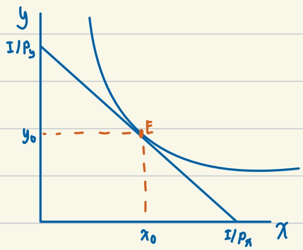
#1

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

	Marginal Utility of Apples (MU_x)	Marginal Utility of Pears (MU_y)	$\frac{MU_x}{MU_y}$
Claire	6	12	1/2
Phil	6	6	1
Haley	6	3	2
Alex	3	6	1/2
Luke	3	12	1/4

P_x P_y

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?



AT the equilibrium point E_0, 1) slope of BL = slope of IC

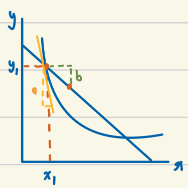
2) E_0 is on budget line

slope of BL : $-\frac{P_x}{P_y} = -\frac{1}{2}$

slope of IC : $-\frac{MU_x}{MU_y}$

$\therefore$ clair and alex is optimizing their choice since $-\frac{MU_x}{MU_y} = -\frac{1}{2} = -\frac{P_x}{P_y}$

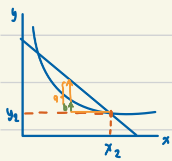
for Phil & Haley



$\frac{P_x}{P_y} < \frac{MU_x}{MU_y}$ which means that they are willing to sacrafice a units of y, while they can sacrafice only b unit of y (a>b) to obtain more unit of x

$\therefore$ They should increase their consumption of x

For Luke

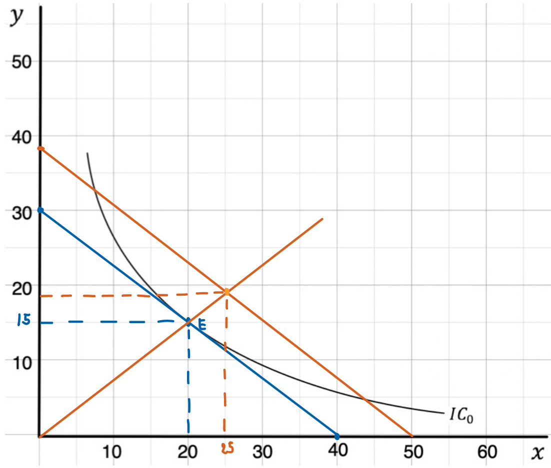


$\frac{P_x}{P_y} > \frac{MU_x}{MU_y}$ means if he is forced to give 1 unit of x, sacrafice b will satisfies him

However, the market will give him a unit of y (a>b).

$\therefore$ he should consume more of y and less of x

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



$3x + 4y = 120$

$\downarrow$

$3x + 4y = 150$

0

$y = \frac{150}{4}$

0

at E

1) $3(20) + 4(15) = 120$

2) $20/15 = 4/3$ = slope of BL

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?

B) $\eta_{I_x} = \frac{\% \Delta Q_x}{\% \Delta I}$, if $\eta_{I_x} = 1 \rightarrow \% \Delta Q_x = \% \Delta I$

we know that $\% \Delta I = \frac{150-120}{120} = 0.25$ $\therefore$ $\% \Delta Q_x$ must equal to 0.25

$\% \Delta Q_x = 0.25 = \frac{Q_1 - 20}{20}$

$Q_1 = 0.25(20) + 20$

$= 25$

C) $\eta_{I_y} = \frac{\% \Delta Q_y}{\% \Delta I}$

from Budget line : $3x + 4y = 150$

$3(25) + 4y = 150$

$y = 18.75$

$\therefore \eta_{I_y} = \frac{\frac{18.75 - 15}{15}}{0.25}$

$= 1$