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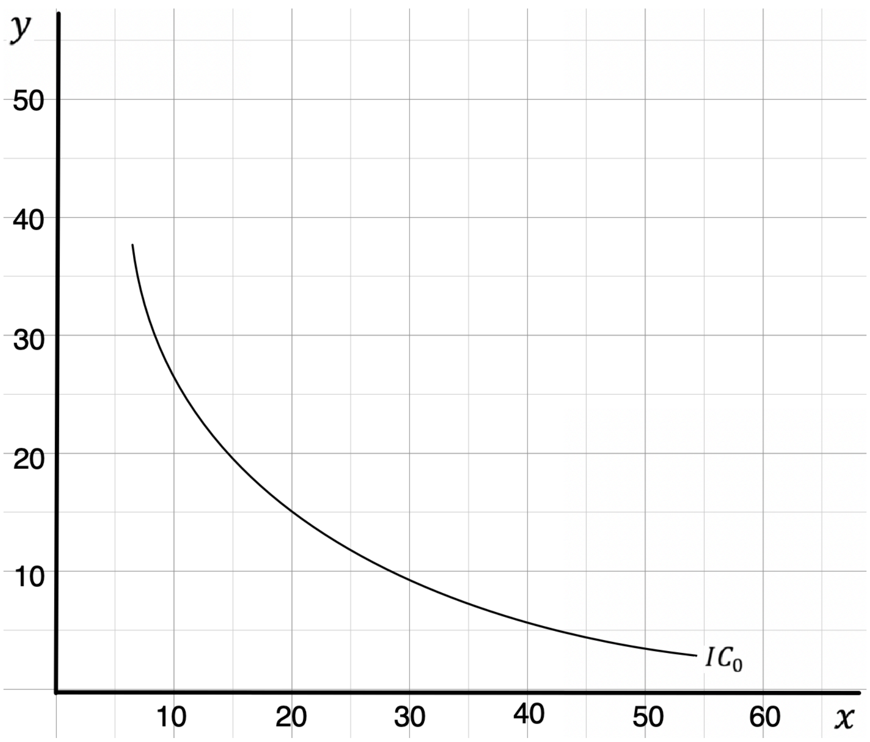
#1

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.

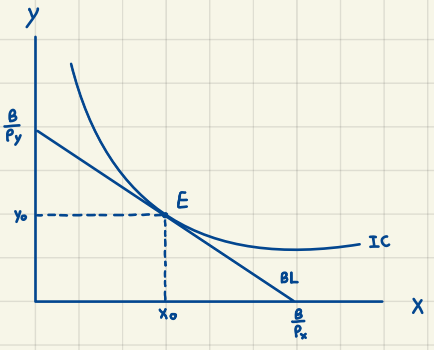


A) Draw the budget line and find the equilibrium with the given indifference curve IC in the diagram below.
B) If the income increases from 120 to 150, where will be the new equilibrium so that the change in the consumption of x be such that the Income Elasticity of x is equal to 1.
C) With the change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

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

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

The price of an apple (P_x) is \$1, and the price of a pear (P_y) 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 point equilibrium E, it is observable that

slope of BL = slope of IC (utilities is maximize)

Slope of BL = $\frac{\Delta y}{\Delta x}$ = $-\frac{P_x}{P_y}$

Slope of IC = $\frac{\Delta y}{\Delta x}$ = $-\frac{MU_x}{MU_y}$

So, slope of BL = slope of IC

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

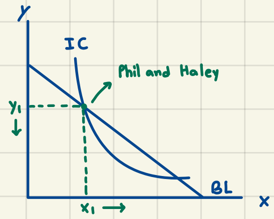
$\Downarrow$

1/2

Therefore, Claire and Alex are optimizing their choices, while others are not

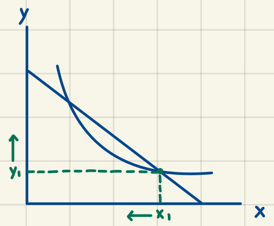
To optimizing their choices of fruits, each of them are suggest as follows.

- Phil and Haley, $\frac{P_x}{P_y} < \frac{MU_x}{MU_y}$



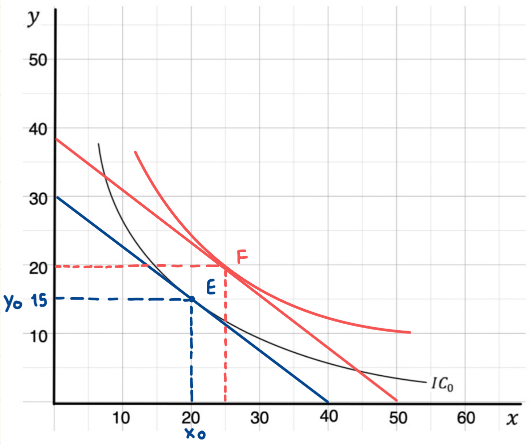
Since $\frac{P_x}{P_y} < \frac{MU_x}{MU_y}$, they should increase their consumption of x (apples) and derease their consumption of y (pears)

- Luke, $\frac{P_x}{P_y} > \frac{MU_x}{MU_y}$



Since $\frac{P_x}{P_y} > \frac{MU_x}{MU_y}$, they should derease their consumption of x (apples) and increase their consumption of y (pears)

#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.
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1 $3X + 4Y = 120$

$$\frac{B}{P_y} = \frac{120}{4} = 30$$

$$\frac{B}{P_x} = \frac{120}{3} = 40$$

2 $3x + 4y = 150$ $\qquad \eta_I^x = 1$

$$\frac{B}{P_y} = \frac{150}{4} = 37.5$$

$$\frac{B}{P_x} = \frac{150}{3} = 50$$

New equilibrium point F

3
$$\eta_I^y = \frac{\% \Delta Q_y}{\% \Delta I} = \frac{\frac{37.5 - 30}{30}}{\frac{150-120}{120}} = \frac{0.25}{0.25} = 1$$