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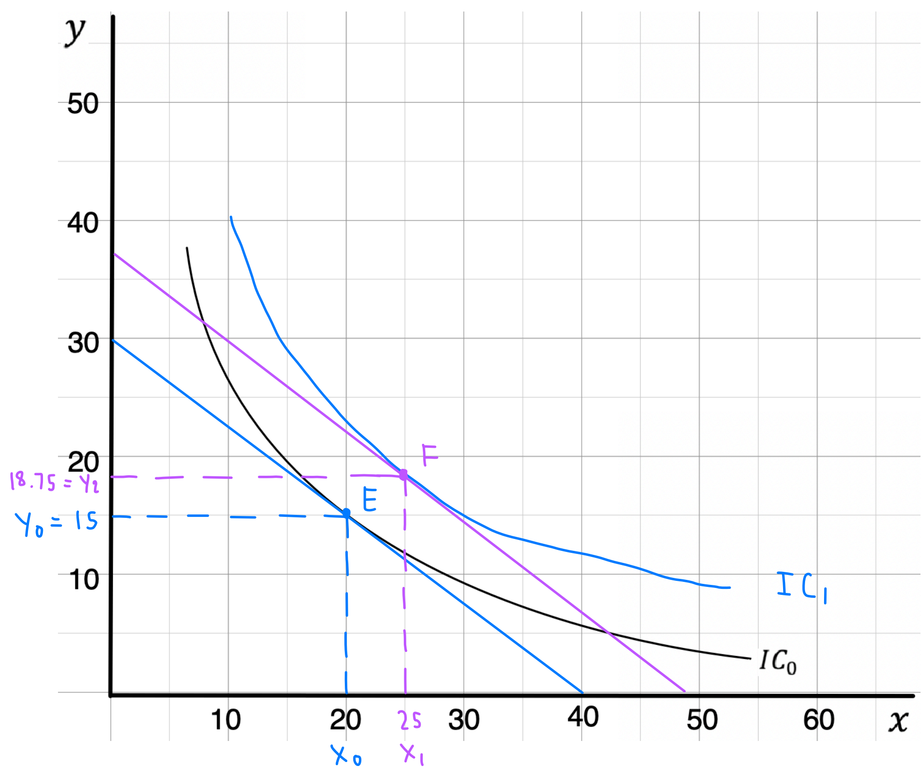
#1

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?

$3X + 4Y = 120$

- $\frac{B}{P_Y} = \frac{120}{4} = 30$
- $\frac{B}{P_X} = \frac{120}{3} = 40$

$\therefore$ slope $= \frac{-Y}{X} = -\frac{30}{40} = -\frac{3}{4}$

$3X + 4Y = 150$

- $\frac{B}{P_Y} = \frac{150}{4} = 37.5$
- $\frac{B}{P_X} = \frac{150}{3} = 50$

$\therefore$ slope $= \frac{-Y}{X} = -\frac{37.5}{50} = -\frac{3}{4}$

① Finding consumer who is optimizing their choices of fruit, Marginal utility per dollar can be applied to see the amount of additional utility that the consumer gets given the price of goods.

	Marginal Utility of Apples	Marginal Utility of Pears	Marginal utility per dollar of Apples	Marginal utility per dollar of Pears
Claire	6	12	6/1 = 6	12/2 = 6
Phil	6	6	6/1 = 6	6/2 = 3
Haley	6	3	6/1 = 6	3/2 = 1.5
Alex	3	6	3/1 = 3	6/2 = 3
Luke	3	12	3/1 = 3	12/2 = 6

1) Claire is a person who is the best optimizes her choices of choosing fruit because the highest total marginal utility per dollar of apples and pears. ANS

2) For others, they should change their expense

- Phil = spend all budget for apples
- Haley = spend all budget for apples
- Alex = spend however he wants, it will benefit equally
- Luke = spend all budget for pears ANS

② Eq Conditions : (old) $3x + 4y = 120$

(new) $3x + 4y = 150$

used to consume $x_0 = 20$ $y_0 = 15$

consume x more $x_1 = 25$ $y_1 = 18.75$

$120 \rightarrow 150$ $\% \Delta I = 25\%$

$20 \rightarrow 25$ $\% \Delta X = 25\%$

$15 \rightarrow 18.75$ $\% \Delta Y = 25\%$

$3(25) + 4(y_1) = 150$

$\frac{150 - 75}{4} = y_1$

$y_1 = 18.75$

b) $\eta^x_I = \frac{\% \Delta X}{\% \Delta I} = \frac{25}{25} = 1 > 0$

∴ when B increase, consume x more ANS

c) $\eta^y_I = \frac{\% \Delta Y}{\% \Delta I} = \frac{25}{25} = 1 > 0$

∴ when B increases consume y more ANS