

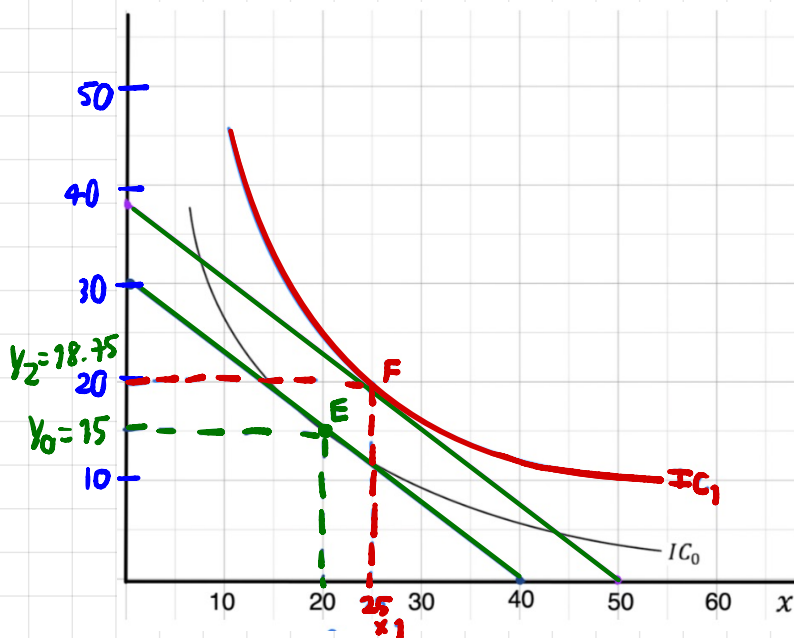
#1

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



$$3x + 4y = 120$$

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

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

$$\text{slope} = -\frac{30}{40} = -\frac{3}{4}$$

$$3x + 4y = 150$$

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

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

$$\text{slope} = -\frac{37.5}{50} = -\frac{3}{4}$$

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finding consumer that optimize their choice of fruit, marginal utility / dollar can be applied to see the amount of additional utility that consumer receive given the price of goods

	Marginal Utility of Apples	Marginal Utility of Pears	Marginal utility per dollar of Apple	Marginal utility per dollar of pear	Σ
Claire	6	12	$6/1 = 6$	$12/2 = 6$	$6+6=12$
Phil	6	6	$6/1 = 6$	$6/2 = 3$	$6+3=9$
Haley	6	3	$6/1 = 6$	$3/2 = 1.5$	$6+1.5=7.5$
Alex	3	6	$3/1 = 3$	$6/2 = 3$	$3+3=6$
Luke	3	12	$3/1 = 3$	$12/2 = 6$	$3+6=9$

① Claire is one who best optimizes her choices of fruit because highest total marginal utility / dollar of apple and pears

for others, they should change their spending by:
Phil = spend all budget for apple

Haley = _____

Alex = spend However he want, it will benefit equally

Luke = spend all budget for pears

② Eq- condition
old $3x + 4y = 120$
new $3x + 4y = 150$

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

consume more $x_1 = 25, y_1 = 18.75$

$$120 \rightarrow 150 \quad \therefore \Delta I = 25$$

$$20 \rightarrow 25 \quad \therefore \Delta X = 25$$

$$15 \rightarrow 18.75 \quad \therefore \Delta Y = 25$$

$$(b) \quad h_I^X \rightarrow \frac{\therefore \Delta X}{\therefore \Delta I} = \frac{25}{25} = 1 > 0$$

when $B \uparrow$, consume X more

$$(c) \quad h_I^Y \rightarrow \frac{\therefore \Delta Y}{\therefore \Delta I} = \frac{25}{25} = 1 > 0$$

when $B \uparrow$, consume Y more