

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?

Marginal utility per dollar of Apples	Marginal utility per dollar of pears	Marginal utility per dollar of apples + pears
$6/1 = 6$	$12/2 = 6$	12
$6/1 = 6$	$6/2 = 3$	9
$6/1 = 6$	$3/2 = 1.5$	7.5
$3/1 = 3$	$6/2 = 3$	6
$3/1 = 3$	$12/2 = 6$	9

1.) Claire optimizes her choices of fruit the best because of the highest total marginal utility per dollar of apples and pears.

2.) For others, how should they change their spending?

Phil = spend all the budget for apples.

Haley = spend all the budget for apples.

Alex = spend however he wants, it will benefit equally.

Luke = spend all budget for pears.

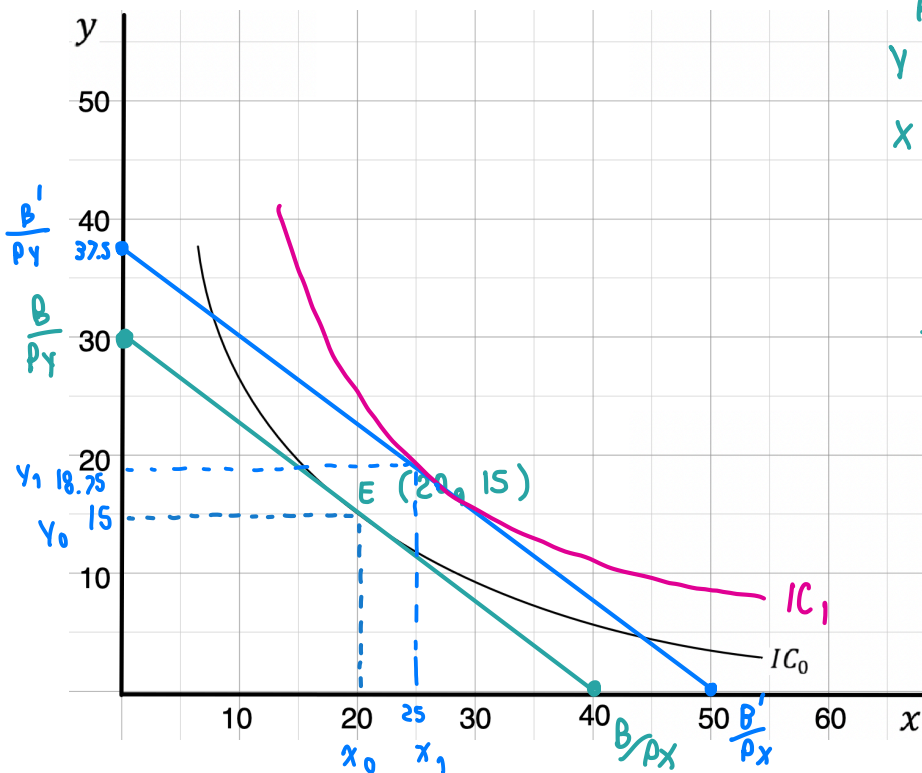
#1

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



Budget line

$$P_x X + P_y Y = B$$

$$Y \text{ intercept} = \frac{B}{P_y} = \frac{120}{4} = 30$$

$$X \text{ intercept} = \frac{B}{P_x} = \frac{120}{3} = 40$$

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

the income elasticity is equal to 1 = Normal (necessary) (higher income leads to higher demand)

B increases from 120 to 150

$$Y \text{ intercept} = \frac{B}{P_y} = \frac{150}{4} = 37.5$$

$$X \text{ intercept} = \frac{B}{P_x} = \frac{150}{3} = 50$$

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

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

$$y = \frac{150 - 75}{4} = 18.75$$

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?

Equim condition (old) $3x + 4y = 120$
 (new) $3x + 4y = 150$

$$(x_0, y_0) = (20, 15)$$

$$(x_1, y_1) = (25, 18.75)$$

$$\frac{150 - 120}{120} = 0.25 = 25\%$$

$$\epsilon_I^x = \frac{\% \Delta X}{\% \Delta I} = \frac{25}{25} = 1 > 0 \text{ when } B \text{ increases, consume } X \text{ more}$$

$$\epsilon_I^y = \frac{\% \Delta Y}{\% \Delta I} = \frac{25}{25} = 1 > 0 \text{ when } B \text{ increases, consume } Y \text{ more}$$