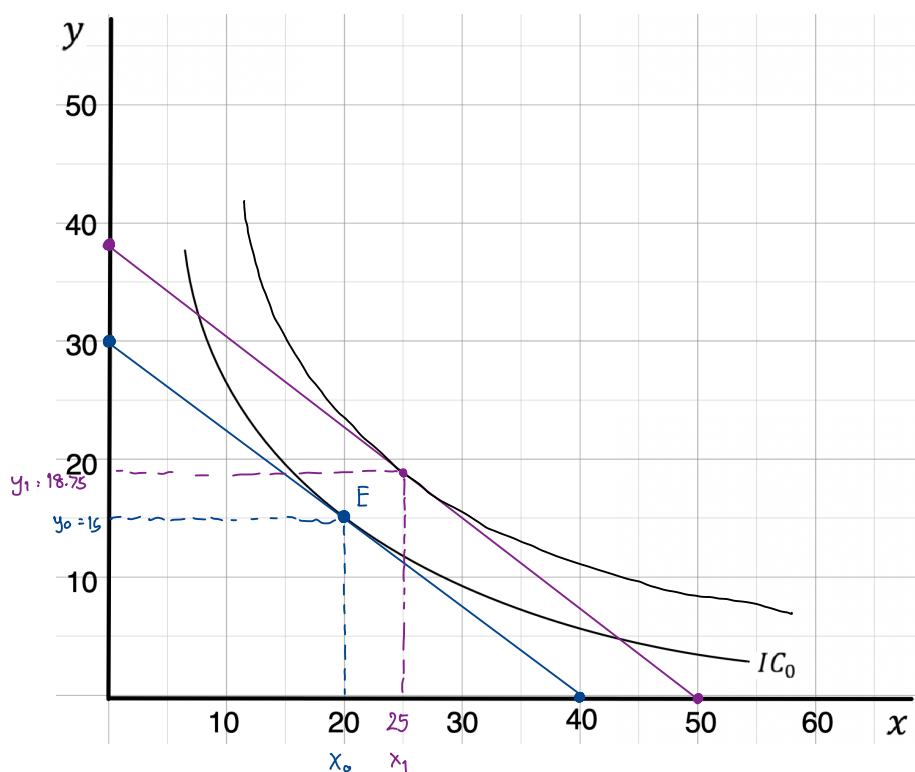


#1

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.

$$3x + 4y = 120$$

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

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

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

$$4y = -3x + 120$$

$$y = -\frac{3}{4}x + 30$$

$$3x + 4y = 150$$

$$4y = -3x + 150$$

$$y = -\frac{3}{4}x + 37.5$$

same slope

- 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. using marginal utility

price	apple: \$1	pear \$2		
	Marginal Utility of Apples	Marginal Utility of Pears	$\frac{MU_x}{P_x}$	$\frac{MU_y}{P_y}$
Claire	6	12	6	6
Phil	6	6	6	3
Haley	6	3	6	1.5
Alex	3	6	3	3
Luke	3	12	3	6

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

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} \quad \left\} \text{to see marginal utility of apple/pear per dollars}\right.$$

Ans Claire and Alex are optimizing their choice of fruit.
 For those who are not : Phil should spend budget on apple
 Haley should spend budget on apple
 Luke should spend budget on pear

2. a) draw the graph

$$b) \eta^x_I = \frac{\% \Delta x}{\% \Delta I} = 1$$

$$\frac{\text{new-old}}{\text{old}} \cdot \frac{\% \Delta x}{\left(\frac{150-120}{120} \right)} = 1$$

0.25

$$\therefore \Delta x = 0.25$$

↓

from $x_0 = 20$, increase 25% (20×1.25)

$$x_1 = 25$$

$$3x + 4y = 150$$

$$75 + 4y = 150$$

$$4y = 75$$

$$y = \frac{75}{4}$$

= 18.75 ∴ So the new equilibrium is (25, 18.75)

$$c) \eta^y_I = \frac{\% \Delta y}{\% \Delta I} = \frac{\frac{18.75-15}{15}}{\frac{150-120}{120}} = \frac{\frac{1}{4}}{\frac{1}{4}} = 1$$

∴ The Income elasticity will be 1 as well.