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#1 Demonstrate how PCC with varying price Py, (Px and Income are fixed) can give us the price elasticity of Y to be equal to, less than, or greater than 1 in absolute value

#2

7. A college student has two options for meals: eating at the dining hall for $6 per meal, or eating a Cup O' Soup for $1.50 per meal. Her weekly food budget is $60.

   a. Draw the budget constraint showing the trade-off between dining-hall meals and Cups O' Soup. Assuming that she spends equal amounts on both goods, draw an indifference curve showing the optimum choice. Label the optimum as point A.

   b. Suppose the price of a Cup O' Soup now rises to $2. Using your diagram from part (a), show the consequences of this change in price. Assume that our student now spends only 30 percent of her income on dining-hall meals. Label the new optimum as point B.

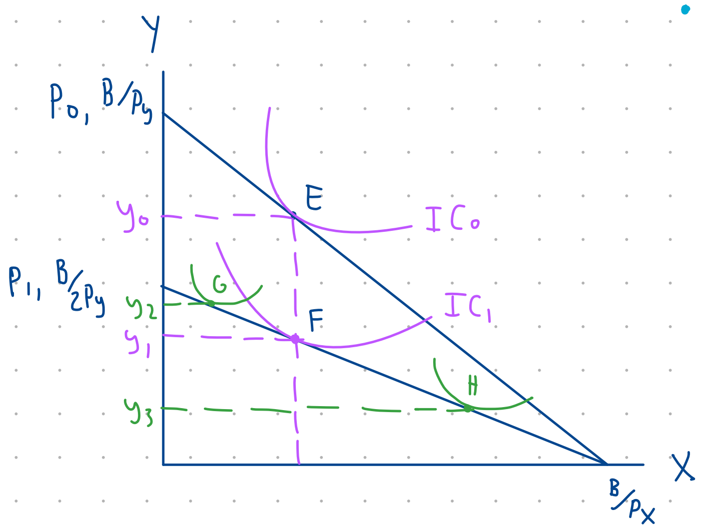
   c. What happened to the quantity of Cups O' Soup consumed as a result of this price change? What does this result say about the income and substitution effects? Explain.

   d. Use points A and B to draw a demand curve for Cup O' Soup. What is this type of good called?

#3

11. Economist George Stigler once wrote that, according to consumer theory, "if consumers do not buy less of a commodity when their incomes rise, they will surely buy less when the price of the commodity rises." Explain this statement using the concepts of income and substitution effects.

#1 Demonstrate how PCC with varying price Py, (Px and Income are fixed) can give us the price elasticity of Y to be equal to, less than, or greater than 1 in absolute value



- $|\eta_y| = \frac{\% \Delta y}{\% \Delta P_y} = 1$ (E → F)

$$\% \Delta P_y = \frac{\Delta P_y}{3/2\, P_y} = \frac{P_y}{3/2\, P_y} = \frac{2}{3}$$

$$\% \Delta y = \frac{-y_0/2}{3/4\, y_0} = \frac{-2}{3}$$

$$\therefore \quad |\eta_y| = \frac{-\frac{2}{3}}{\frac{2}{3}} = |-1| = 1$$

<u>Let</u>

$P_0 = P_y$

$P_1 = 2P_y$

$\Delta P_y = P_1 - P_0 = 2P_y - P_y = P_y$

$$\frac{P + P_0}{2} = \frac{3P_y}{2} = \frac{3}{2} P_y$$

- $|\eta_y| = \frac{\% \Delta y}{\% \Delta P_y} > 1$ (E → H)
- $|\eta_y| = \frac{\% \Delta y}{\% \Delta P_y} < 1$ (E → G)

<u>Let</u>

$y_1 = \frac{y_0}{2}$, y_0

$\Delta y = y_1 - y_0 = \frac{y_0}{2} - y_0 = \frac{-y_0}{2}$

$$\frac{y_1 + y_2}{2} = \frac{\frac{y_0}{2} + y_0}{2} = \frac{3}{4} y_0$$

#2

7. A college student has two options for meals: eating at the dining hall for $6 per meal, or eating a Cup O' Soup for $1.50 per meal. Her weekly food budget is $60.

X y

$6X + 1.5y = 60$

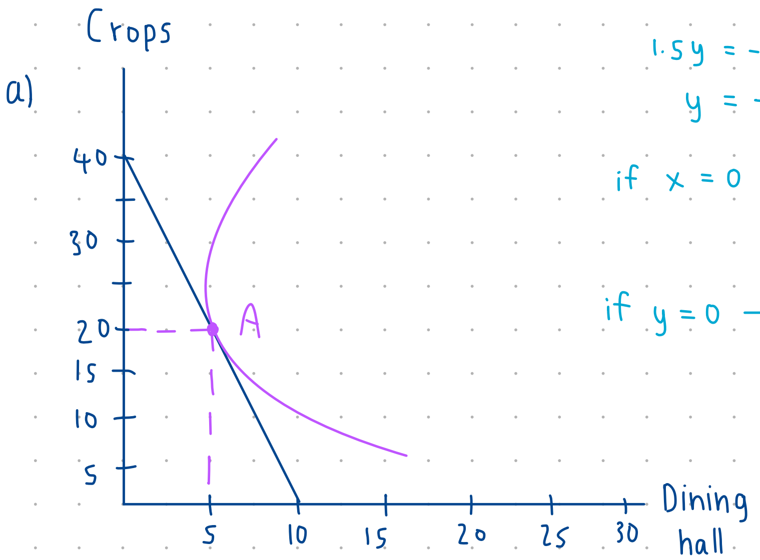
a. Draw the budget constraint showing the trade-off between dining-hall meals and Cups O' Soup. Assuming that she spends equal amounts on both goods, draw an indifference curve showing the optimum choice. Label the optimum as point A.

b. Suppose the price of a Cup O' Soup now rises to $2. Using your diagram from part (a), show the consequences of this change in price. Assume that our student now spends only 30 percent of her income on dining-hall meals. Label the new optimum as point B.

c. What happened to the quantity of Cups O' Soup consumed as a result of this price change? What does this result say about the income and substitution effects? Explain.

d. Use points A and B to draw a demand curve for Cup O' Soup. What is this type of good called?

a)



$1.5y = -6X + 60$

$y = -4X + 40$

if $X = 0 \longrightarrow y = 0 + 40$

$y = 40$

if $y = 0 \longrightarrow 0 = -4X + 40$

$4X = 40$

$X = 10$

Spend Equal

$6X = \frac{60}{2}$ price for spending half

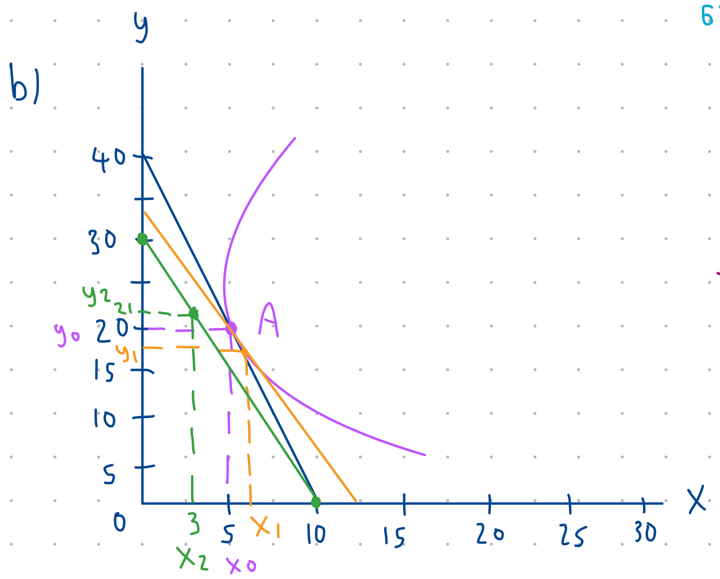
$6X = 30$

$X = 5$

$1.5y = \frac{60}{2}$

$y = 20$

b)



$6X + 2y = 60$

$2y = -6X + 60$

$y = -3X + 30$

$X = 0 \Rightarrow y = 0 + 30$

$y = 30$

$y = 0 \Rightarrow 0 = -3X + 30$

$3X = 30$

$X = 10$

Spending 30% on x and 70% on y

$\$60 \times \frac{30}{100} = 18\$$

$\$6X = 18\$$

$X = 3$ units

$\$60 \times \frac{70}{100} = 42\$$

$\$2y = 42\$$

$y = 21$ Units

c) The result of price change, consumption of Cups O increased by 1

The result of subsitution effect,

Increase in P_y makes X seems less expensive

$$S.E. \Rightarrow \begin{cases} \Delta X = X_1 - X_0 = \square > 0 \\ \Delta y = y_1 - y_0 = \square < 0 \end{cases}$$

more x and less y as always