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#1 If the price Px and Py increase 10% at the same time, with income Remaining unchanged, show that this is equivalent to a reduction in income.

#2 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

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.

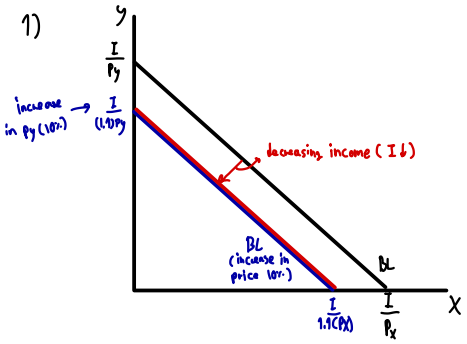
   a. Draw the budget constraint showing the trade-off between dining-hall meals and Cups O' Soup. Assuming that she spends equal amounts on both goods, draw an indifference curve showing the optimum choice. Label the optimum as point A.

   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.

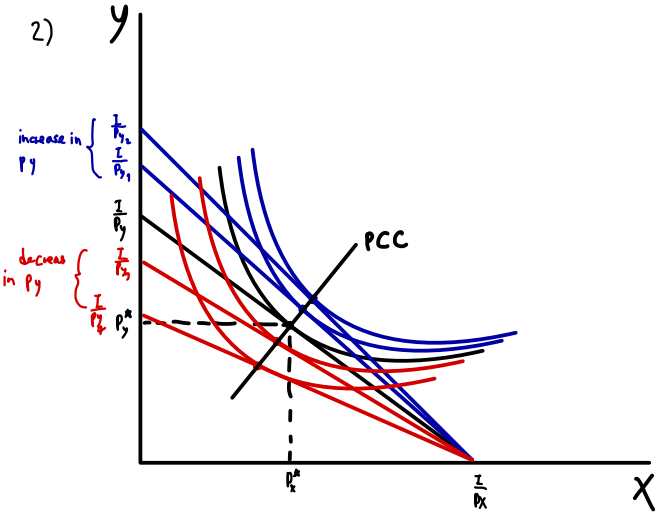
   d. Use points A and B to draw a demand curve for Cup O' Soup. What is this type of good called?

1)



in case of reduction in income, it mean that budget constraint are shift to the left on decreasing in budget line is the same as increasing in price of x and y (as the graph)

2)



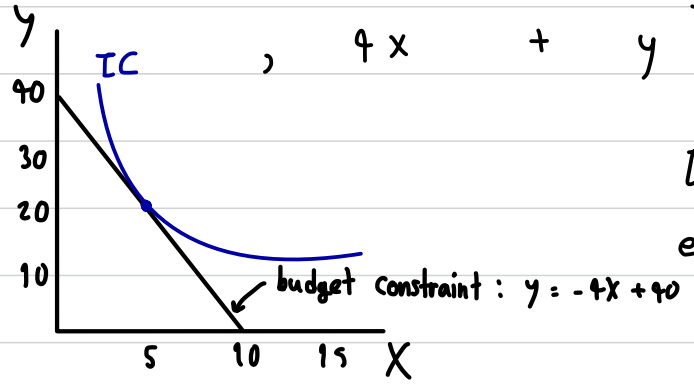
a) Let x and y be the number of meals consumed at dining hall and Cup O' soup

Budget constraint :

spend on meals at dining hall and cup O'soup $\leq$ Income

$$6x + 1.5y \leq 60$$

$$4x + y \leq 40 \rightarrow \text{budget constraint}$$



It is given that half of the budget is spend on each good.

$6x = \frac{1}{2} \times 60$, $1.5y = \frac{1}{2} \times 60$

$x = 5$ $y = 20$

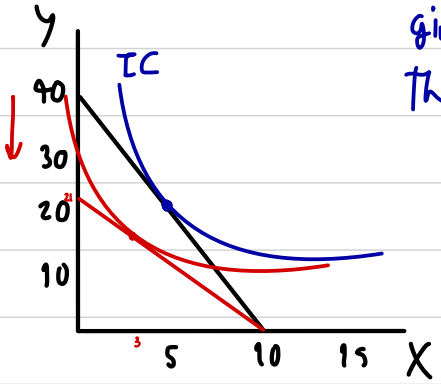
Thus, the optimum point is (5, 20)

b) When price of Cup O'soup change to $ 2 mean that we can consume less of Cup O' soup (y) as $2y = 60$, $y = 30$, and graph will change given that now only 30% of income is spent on meal at dinning halls

Thus, new optimum point at (3, 21)

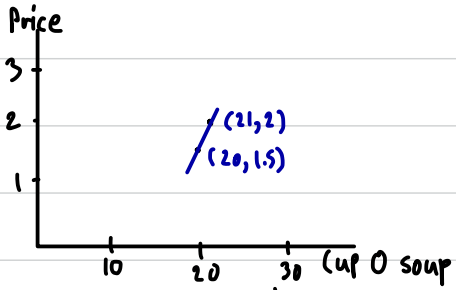
$2y = \frac{70}{100} \times 60$ $6x = \frac{70}{100} \times 60$

$y = 21$ $x = 3$



c) As a result in price change, consumption of meals at Cup O' soup is increased by 1 (20 → 21) For the substitution effect, consumption should have decrease, If the consumption has increase this mean that income effect must have resulted into increase in this consumption and outweighed the substitution effect (Meal at cup O soup is interior good as the fall in real income has result in to increase in it consumption)

d) The demand curve for meals at Cup O' soup would pass through (20, 1.5) and (21, 2).



As the demand curve is positively sloping, meal at Cup O' soup is a giffen good