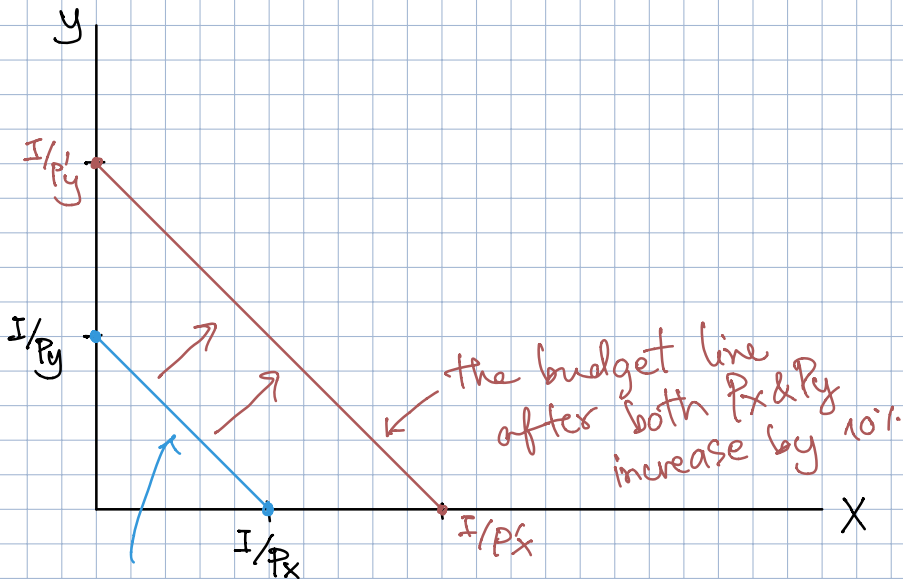


HW#7 6304640102

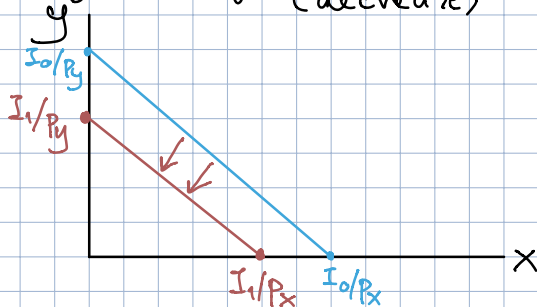
#1 If the price P_x and P_y increase 10% at the same time, with income Remaining unchanged, show that this is equivalent to a reduction in income.



The original budget line

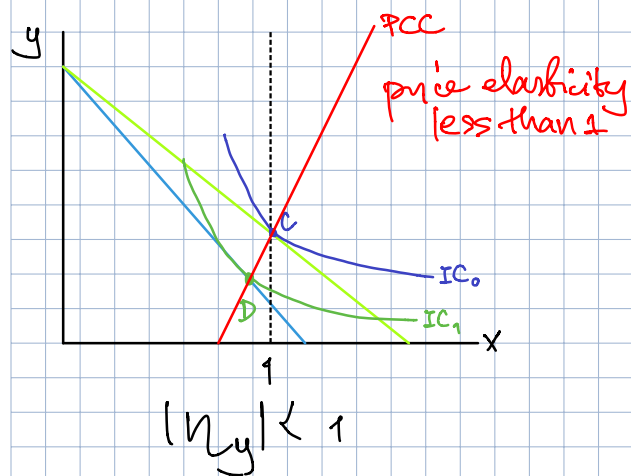
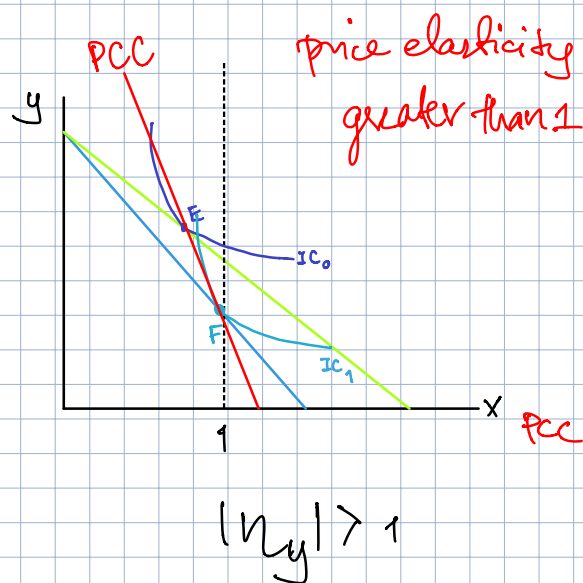
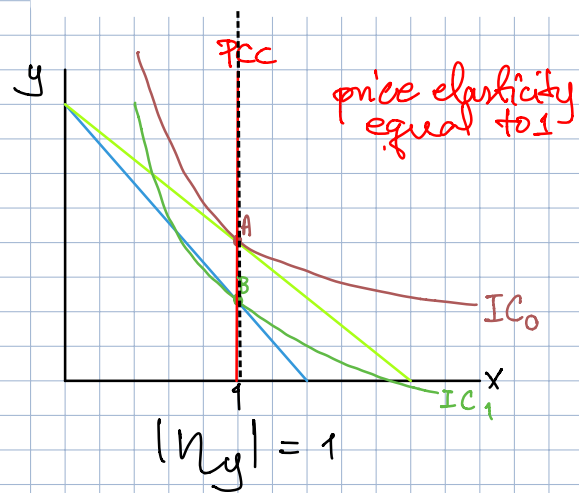
As the graph shown, given that I/P_x and I/P_y are the original intercepts for the original budget line. Then when P_x increase by 10% it became P'_x while P_y also increase by 10% and became P'_y . Let I/P'_x and I/P'_y be the new intercepts for the new budget line.

The graph of reduction in income (decrease)



As you can see the graph looks the same, the only mismatch is the change in direction of budget line.

#2 Demonstrate how PCC with varying price P_y (P_x 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.

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

A. Solution Let D - eating at the dining hall
C - eating at a Cup O' Soup

Then,

$$6D + 1.50C \leq 60$$

$$1.50(4D + C) \leq 60$$

$$4D + C \leq 60/1.50$$

the sign has to be 'less than or equal' because it can't exceed the weekly food budget which is 60

$\therefore 4D + C \leq 40 \rightarrow$ find D-intercept

A college student spend her income equally on both goods, means that she spent half of her income on each goods

Let $C=0$,
 $4D + 0 = 40$
 $\therefore D = 10$
 find C-intercept
 let $D=0$
 $4(0) + C = 40$
 $\therefore C = 40$

Thus,

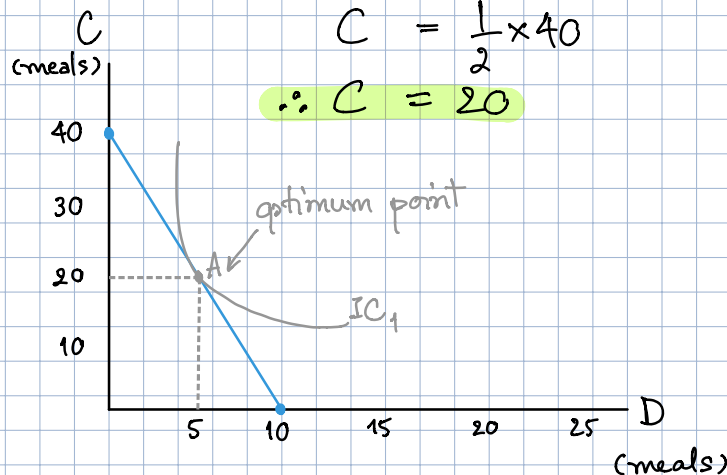
$$4D = \frac{1}{2} \times 40$$

$$4D = 20$$

$$\therefore D = 5$$

$$C = \frac{1}{2} \times 40$$

$$\therefore C = 20$$



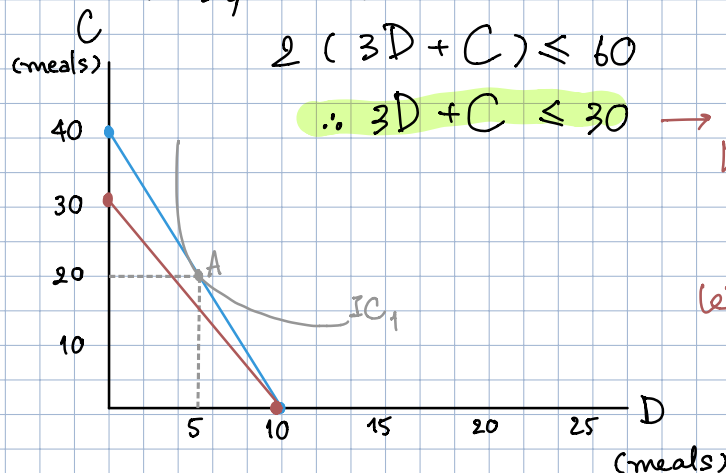
(B) price of C increase to 2\$

thus, $6D + 2C \leq 60$

$2(3D + C) \leq 60$

$\therefore 3D + C \leq 30$

→ find D-intercept
let $C=0$,
 $3D + 0 = 30$
 $\therefore D = 10$
find C-intercept
let $D=0$
 $3(0) + C = 30$
 $\therefore C = 30$



Now a college student spent only 30% of her income with D then we can assume that another 70% spent on C

for D; $6D = \frac{30}{100} \times 60$

$6D = 18$

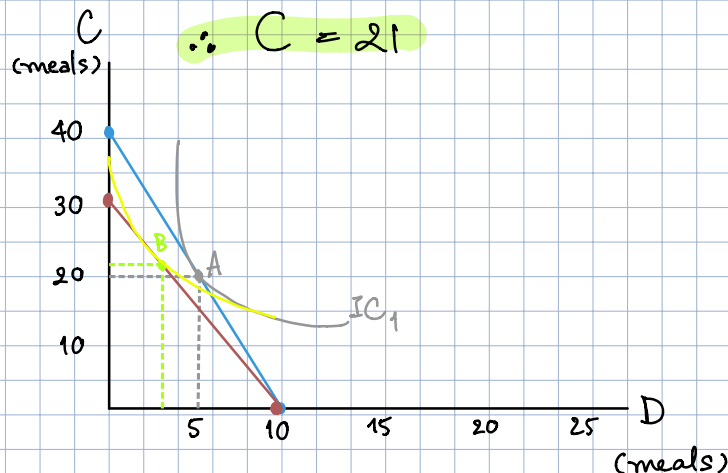
$\therefore D = 3$

for C; $2C = \frac{70}{100} \times 60$

$2C = 42$

$\therefore C = 21$

Hence,



C) After a price change, the quantity of C change by 1, which is increasing.

Normally, if the price is higher, the consumption should be lower but in this case the income effect is result in the increase of consumption. For substitution effect is not resulted.

D)

