#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.

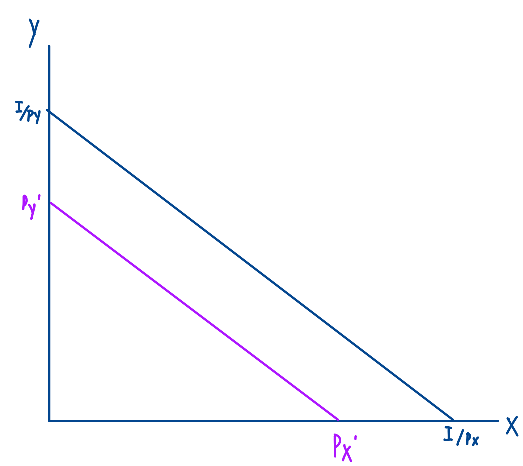
   a. Draw the budget constraint showing the trade-off between dining-hall meals and Cups O' Soup. Assuming that she spends equal amounts on both goods, draw an indifference curve showing the optimum choice. Label the optimum as point A.

   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.

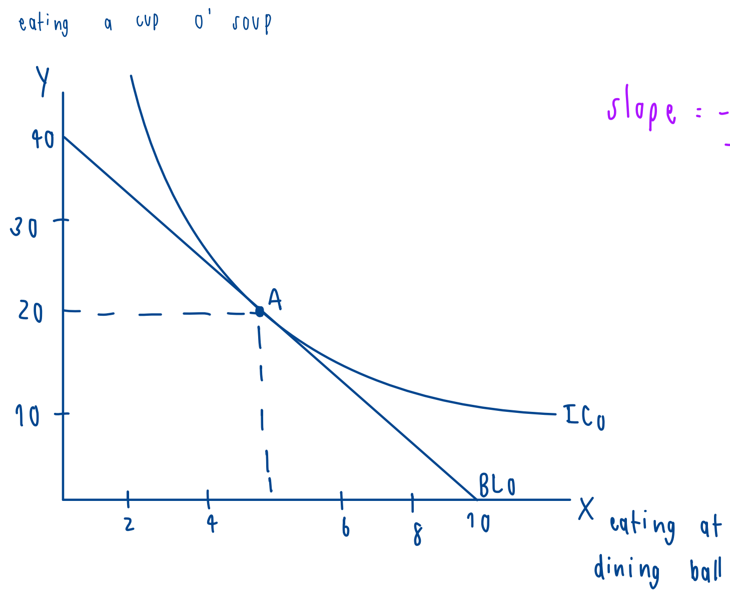
   d. Use points A and B to draw a demand curve for Cup O' Soup. What is this type of good called?

#1



from the graph, if the price change at the same time and the same rate leads to inflation.

(a.)



slope $= -\frac{P_x}{P_y} = -\frac{40}{10} = -4$

let $x \rightarrow$ eating at the dining hall (\$ 6 / meal)

let $y \rightarrow$ eating a cup o' soup (\$ 1.5 / meal)

her budget = \$ 60

$BL_0 = Px + Py = 60$

$6x + 1.5y = 60$

$x = 0, \; y = 40$

$x = 10, \; y = 0$

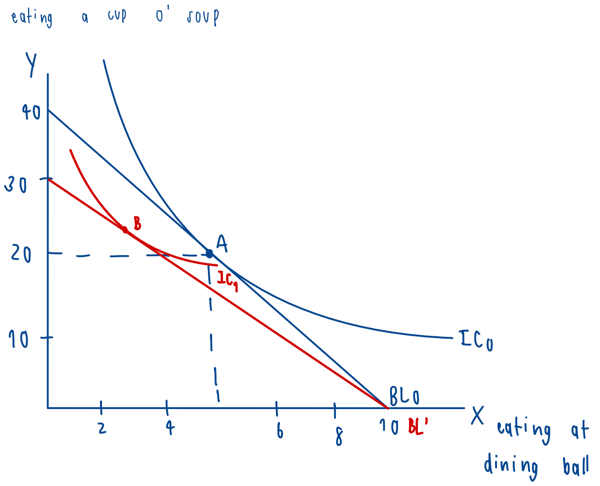
∴ If she want to eat 1 meal at dining hall, she have to trade off 4 meal of eating a cup o' soup. And she spend equal amount on both goods →

$6x = 30 \rightarrow x = 5$

$1.5y = 30 \rightarrow y = 20$

∴ At point A : she spends equal on both goods.

(b.)



the price of cup o' soup rises to \$2 (from 1.5)

$6x + 2y = 60$

$x = 0, \ y = 30$

$x = 10, \ y = 0$

now, the student spends only 30% of her budget on dining hall meals

$\frac{30}{100}(60) = \$18 = P_x$

$18 + 2y = 60$

$2y = 42$

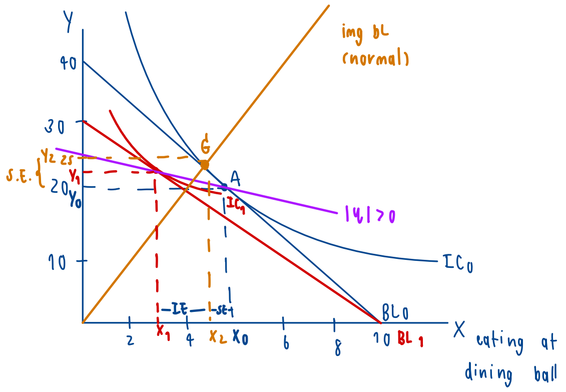
$y = 21$

can spend only \$42 on cup o'soup.

$6x = 18, \ 2y = 42$
$x = 3, \ y = 21$

At point B = (3, 21) is the optimum

c.) eating a cup o' soup



from A to B

total effect $\Delta x = x_1 - x_0$

$\Delta y = y_1 - y_0$

slope of BL change from

IC_0 ; $\frac{P_x}{P_y} = 4 \rightarrow \frac{P_x'}{P_y} = \frac{30}{10} = 3$

she can consume less because the price of cup o' soup has increases.

from A to G → sub effect

G can be determined by drawing an "imaginary budget line' that has the same slope as the new budget line $\frac{P_x'}{P_y} = 3$

to be tangent to the original IC_0 at G.

- sub effect for $x = x_0 - x_2$

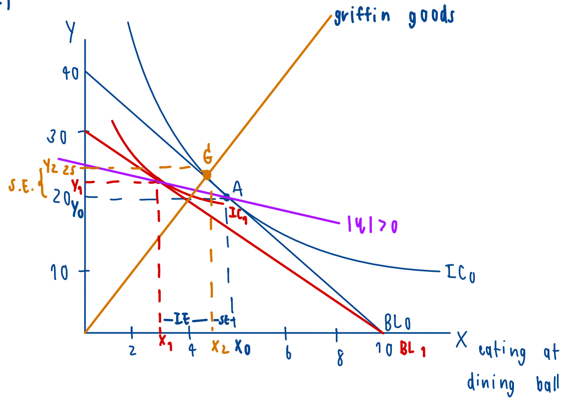
  for $y = y_2 - y_0$

- Income effect - from G to B

change in $x = x_2 - x_1$

$y = y_2 - y_1$

(d.)



from yellow line, price of x decrease. So consumer buy less of X → Griffin goods.