HW#9 Due April 22, 2021

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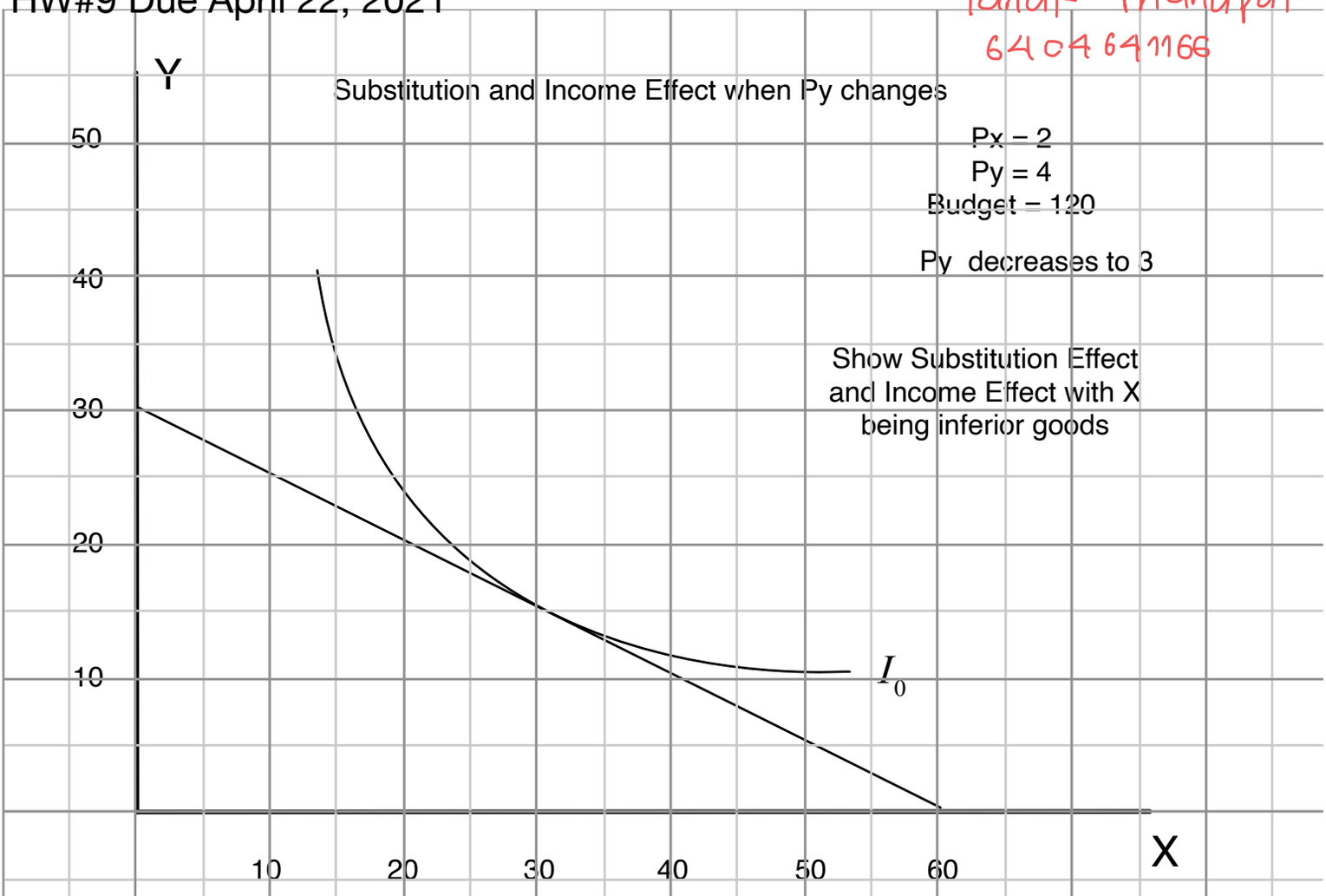
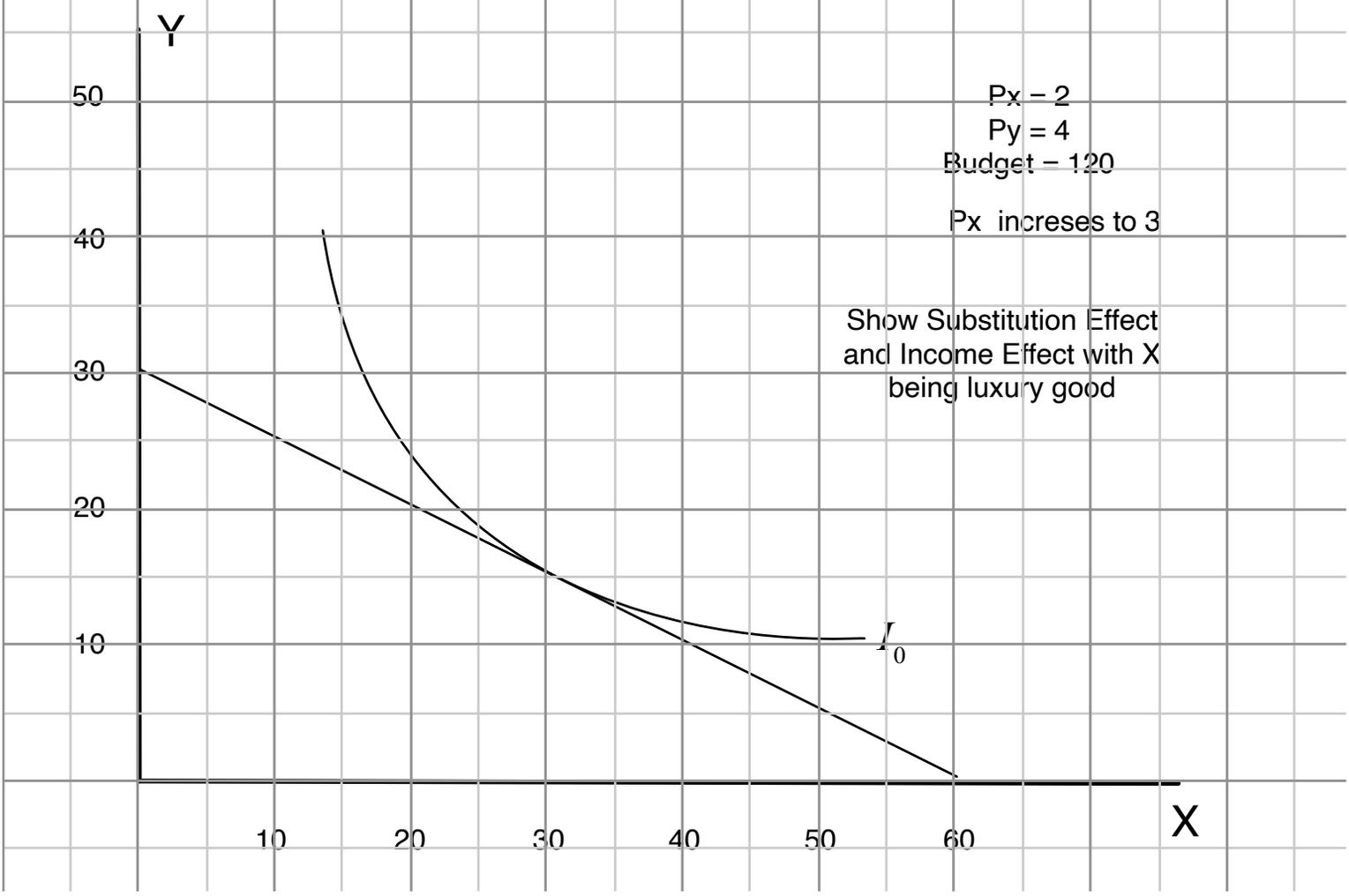
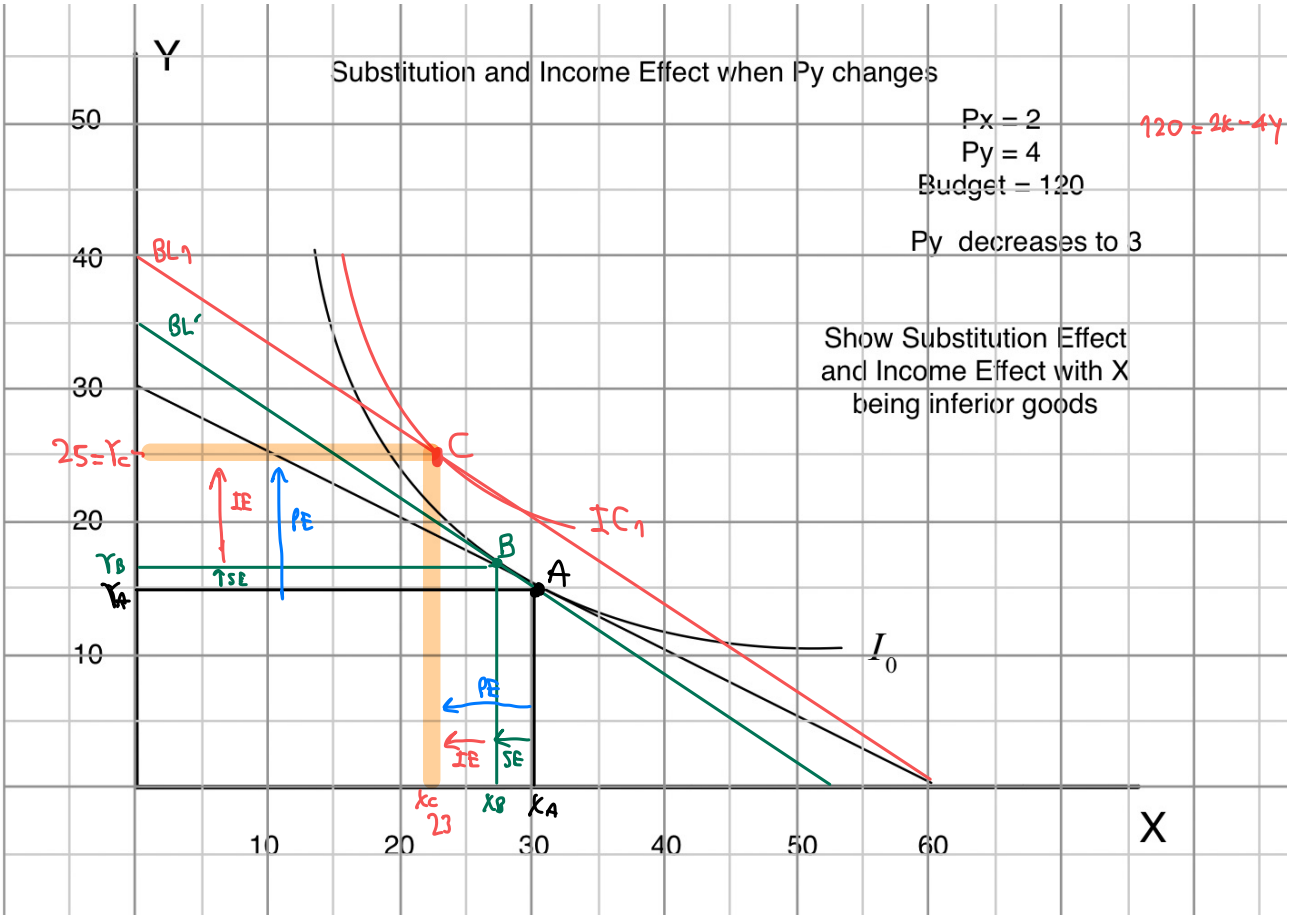






- As X is inferior so y must be normal good as when income increase, customer will consume less x, so y must be normal good in order to keep the optimum utility.

-Originally, this consumer consume at point A where is having an optimun utility and spending all of budget effectively, which consuming

$x = 30$ units , $y = 15$ units

$\text{Max } Q_x = \frac{120}{2} = 60$ units

$\text{Max } Q_y = \frac{120}{4} = 30$ units

Substitution Effect (A to B)

As price of Y decrease, consumer will consume more Y (Y_A to Y_B) and have to sub by decreasing amount of x from x_A to x_B

∴ SE : $P_y \downarrow \rightarrow Q_y \uparrow$ sub by $Q_x \downarrow$

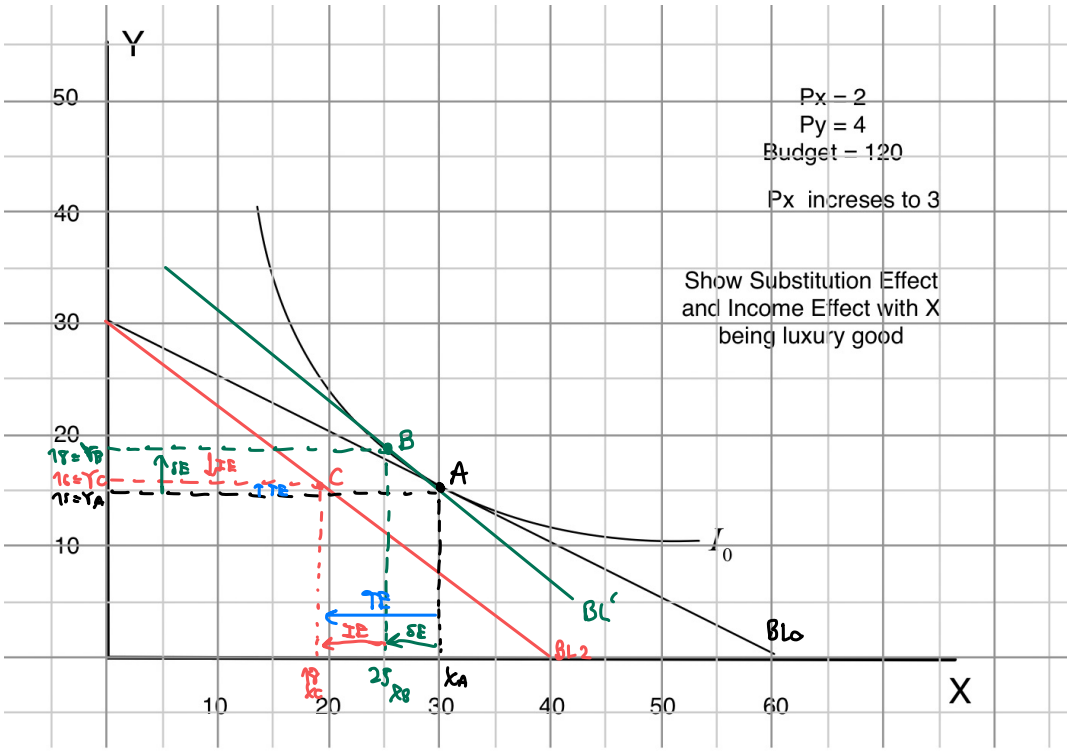
Income Effect (B to C)

As Py decreases to 3, this consumer has more ability to buy product Y so consumer will consume $Q_x \downarrow$; inferior good

$Q_y \uparrow$; normal good

$\text{Max } Q_y = \frac{120}{3} = 40$ units

max Q_x remain the same as price does not change so the budget line rotate from BL_0 to BL_1



As x is luxury good

it means that if $P_x \uparrow \rightarrow Q_x \downarrow\downarrow$ ($P_x \uparrow 1\% \rightarrow Q_x \downarrow > 1\%$)

$P_x \downarrow \rightarrow Q_x \uparrow\uparrow$ ($P_x \downarrow 1\% \rightarrow Q_x \downarrow < 1\%$)

-Originally, this consumer Consume at Point A where is having an optimun utility and spending all of budget effectively, which consuming

$x = 30$ units , $y = 15$ units

Max $Q_x = \frac{120}{2} = 60$ units

Max $Q_y = \frac{120}{4} = 30$ units

Substitution Effect (A to B)

As price of x increase, consumer will consume less of x a lot (from X_a to X_B); luxury good and have to sub by increasing amount of Y from Y_A to Y_B in order to keep the same utility ; change from point A to B which create Imaginary budget line as BL'

∴ SE : $P_x \uparrow \rightarrow Q_x \downarrow\downarrow$ sub by $Q_y \uparrow$

Income Effect (B to C)

As P_x increase to 3, this consumer has less ability to buy product x; having lower real income, so consumer will consume $Q_x \downarrow\downarrow$

Max Q_y remain the same as price does not change

So the budget line rotate from BL_0 to BL_1