

Change of Consumption Equilibrium (IC's do not change)

- 1) Change in Income
- 2) Change in price of a product.

1) Income Increases.

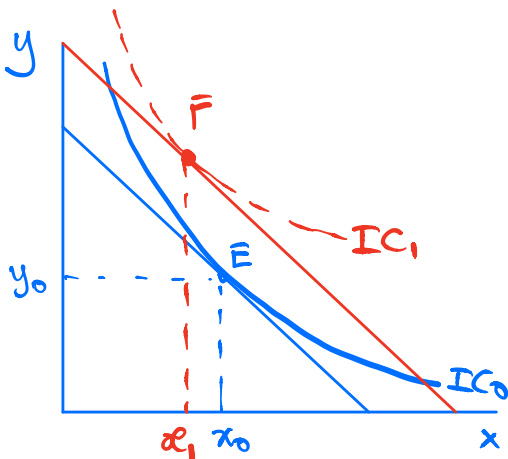
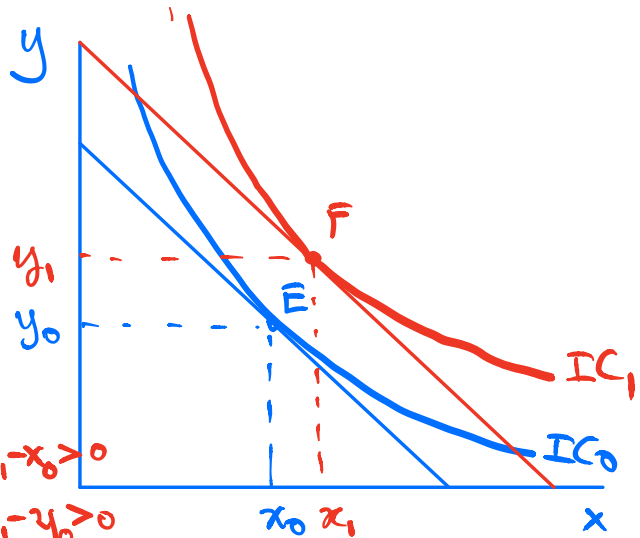
Before income increases,
Eq is at $E = (x_0, y_0)$

Income increases so the
budget line shifts up.

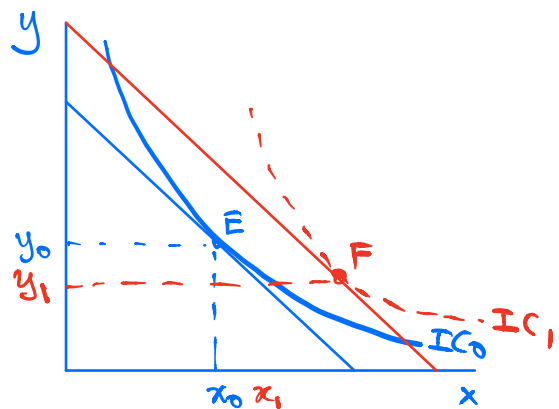
New Eq is at $F = (x_1, y_1)$

More income \Rightarrow more $x = \Delta x = x_1 - x_0 > 0$
more $y = \Delta y = y_1 - y_0 > 0$

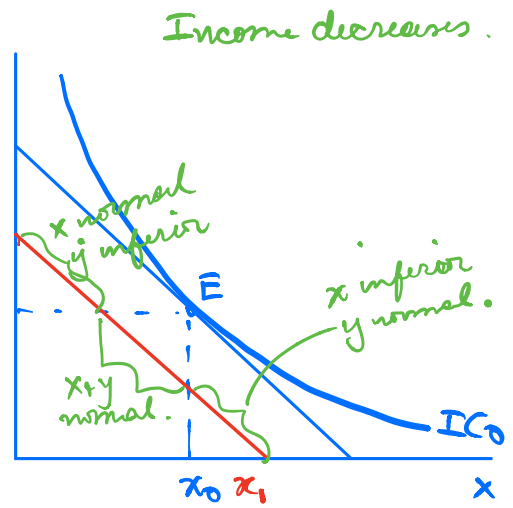
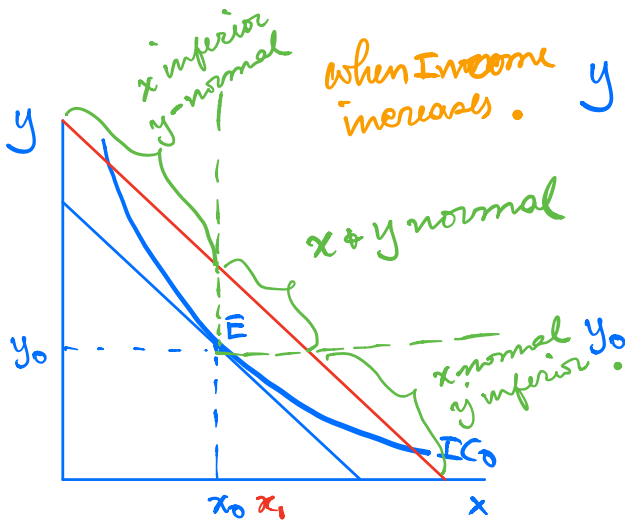
\therefore both $x + y$ are normal goods.



x is inferior
 y is normal.



y is inferior
 x is normal.

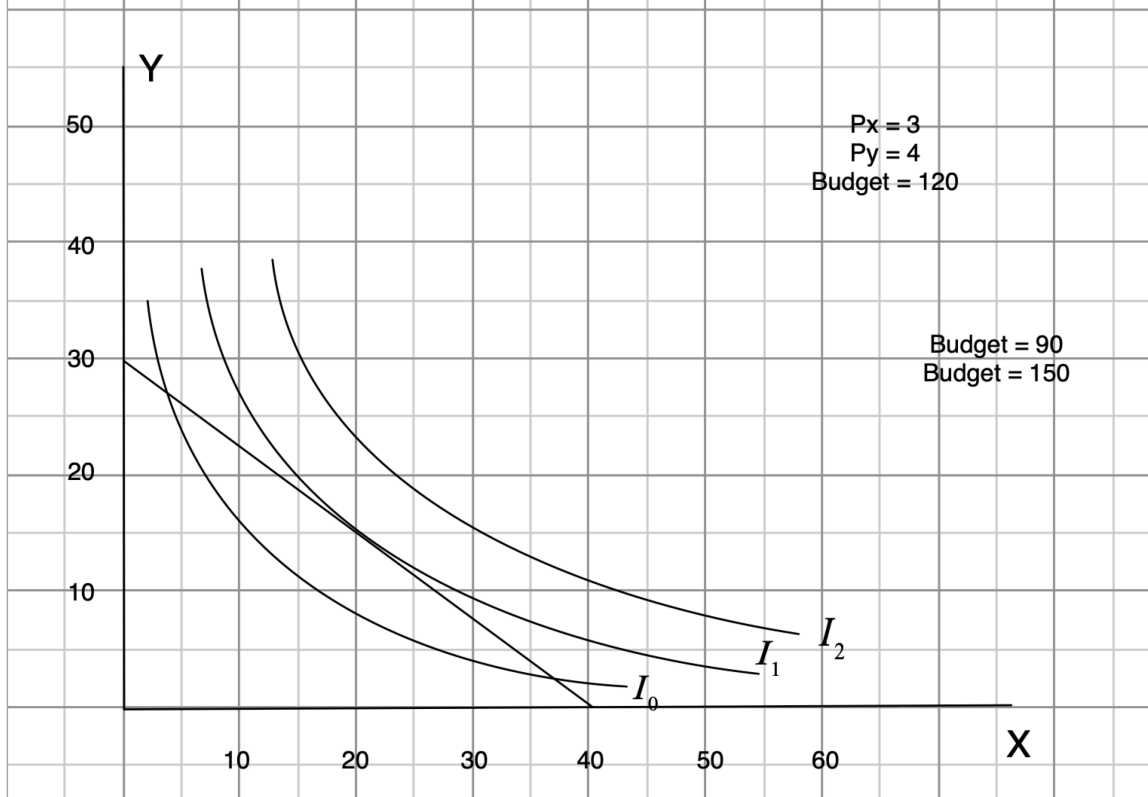
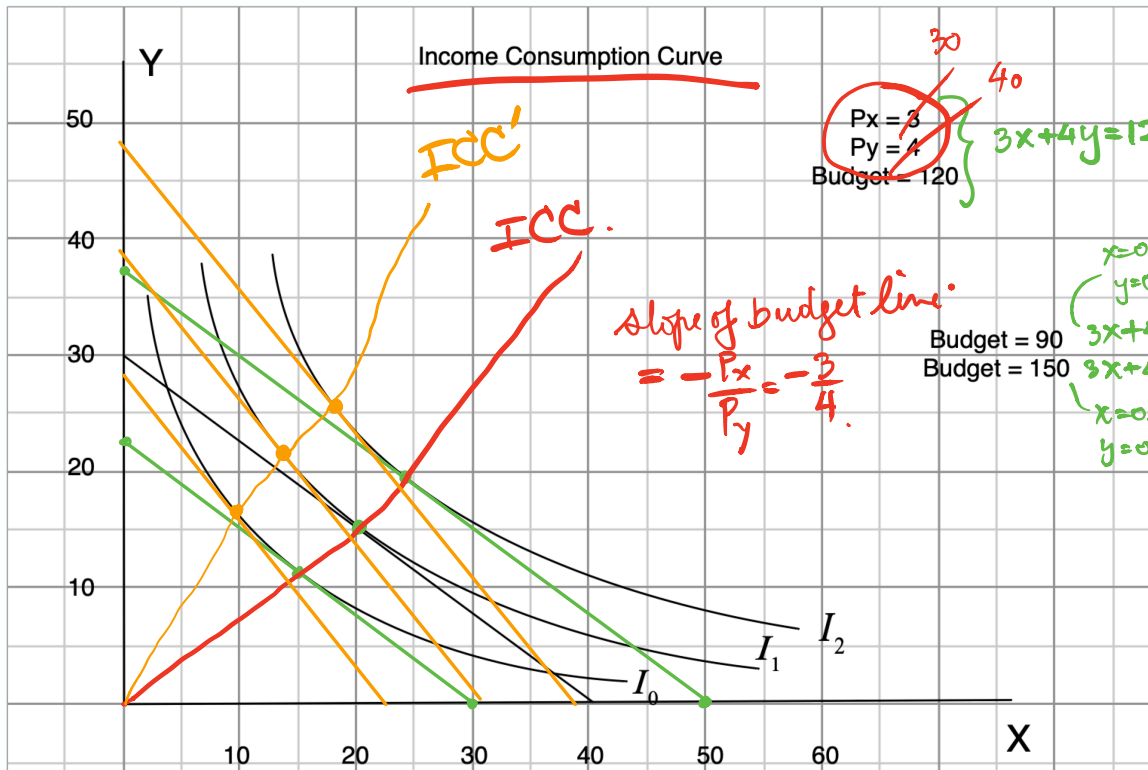


Normal \Leftrightarrow

$$\eta_I \geq 0$$

Inferior \Leftrightarrow

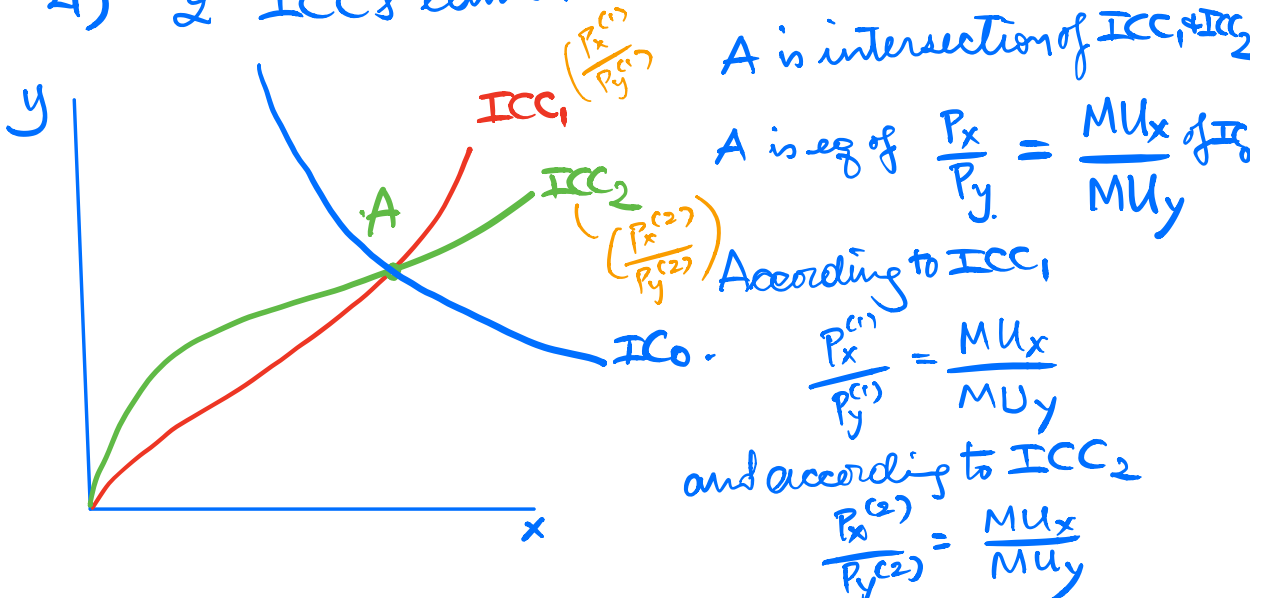
$$\eta_I < 0.$$



ICC is a line whose every point is a consumption equilibrium for a given income level at fixed prices of P_x and P_y .

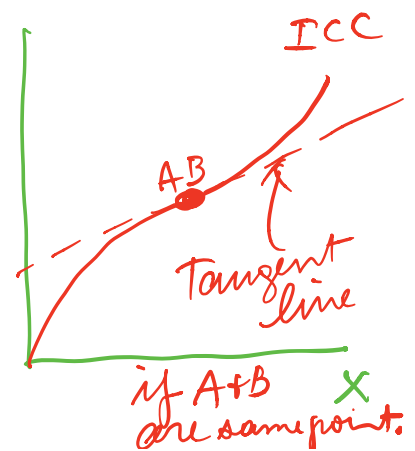
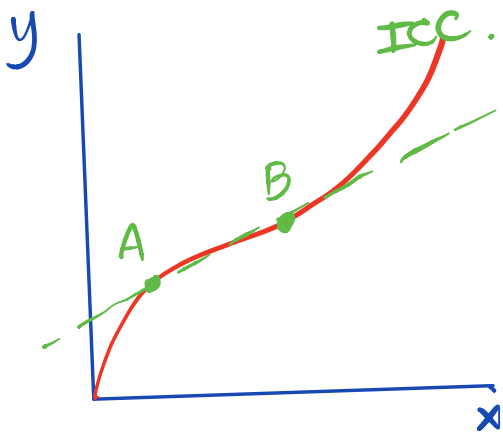
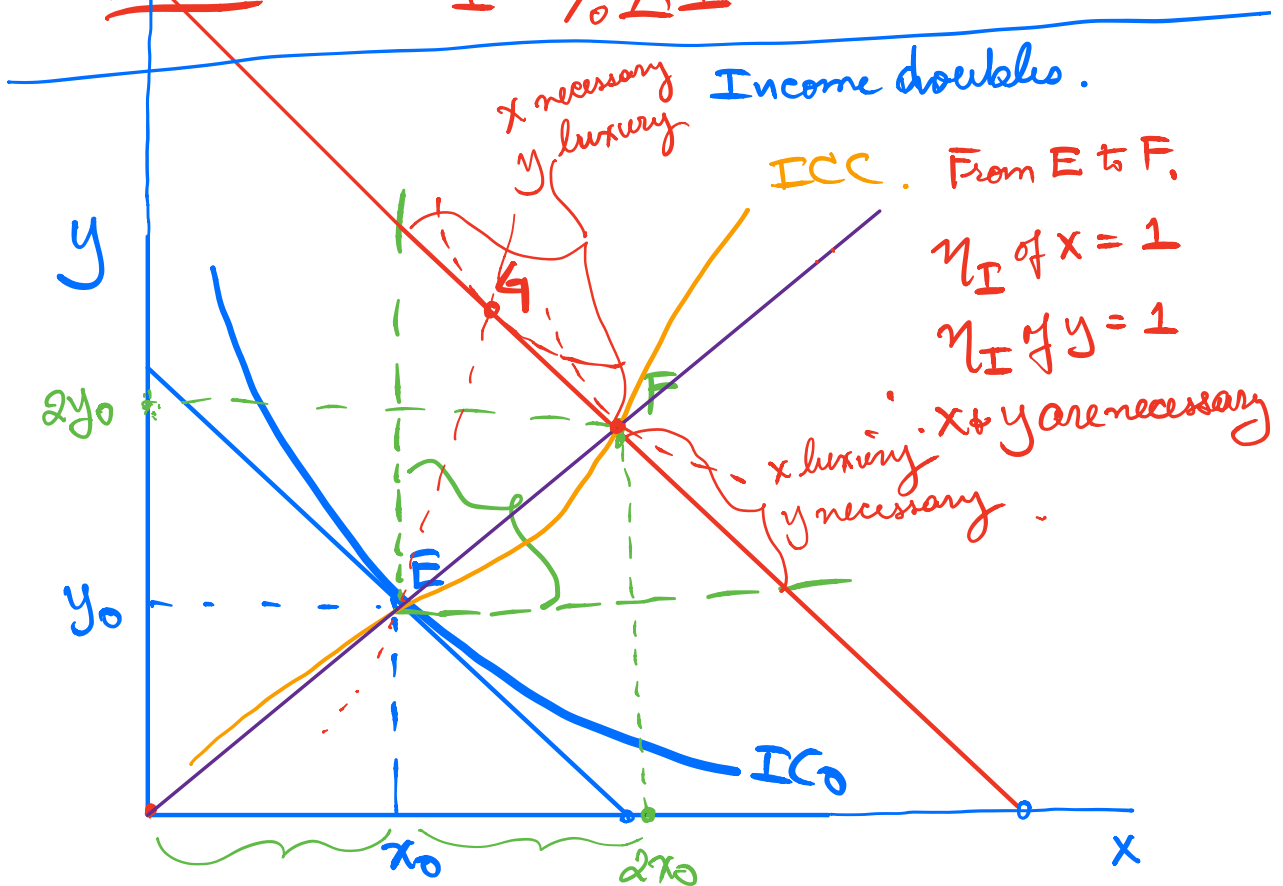
Properties of ICC

- 1) ICC always passes through the origin.
- 2) If we have the same relative price $\frac{P_x}{P_y}$, we have the same ICC.
- 3) If we have a different $\frac{P_x}{P_y}$, we have a different ICC
 - if $\frac{P_x'}{P_y'}$ new relative price is higher than $\frac{P_x}{P_y}$
 ie $\frac{P_x'}{P_y'} > \frac{P_x}{P_y}$, the new ICC' will be above ICC.
- 4) 2 ICC's cannot intersect.



- 2 ICC's cannot be tangent to each other because of the same reason.

Recall $1 = \eta_I = \frac{\% \Delta Q_x}{\% \Delta I} \Rightarrow \% \Delta Q_x = \% \Delta I$

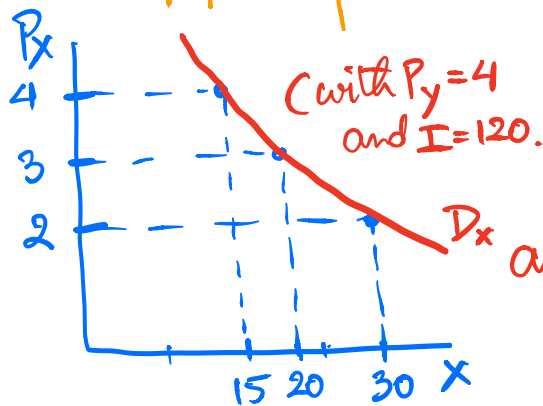


2) Change in P_x . - P_y and I are fixed.

If P_x changes from $P_x = 3$ to $P'_x = 4$.

Budget line $3x + 4y = 120$
 $\Rightarrow 4x + 4y = 120$.

P_x	X	Equilibri
2	30	A
3	20	B
4	15	C



This table is the demand of the consumer.

Demand = relationship between P_x and the quantity demanded Q_x

That the consumer is willing (because each point A, B, C the consumer receives the highest satisfaction possible) and able to buy (because every eq. must be on the budget line.)

PCC. is a line whose every point is a consumption equilibrium with a varying P_x while I and P_y are fixed. \therefore This PCC gives us the demand D_x with (P_x & I constant).

Price Consumption Curve

50

$P_x = 3$

$P_y = 4$

Budget = 120

40

$P_x = 2$

$P_x = 4$

30

20

10

PCC

P_x	X	Equilibrium
2	30	A
3	20	B
4	15	C

10

15

20

$4x + 4y = 120$

$2x + 4y = 120$

30

40

50

60

X

50

$P_x = 3$

$P_y = 4$

Budget = 120

40

30

20

10

$P_x = 2$

$P_x = 4$

I_2

I_1

I_0

10

20

30

40

50

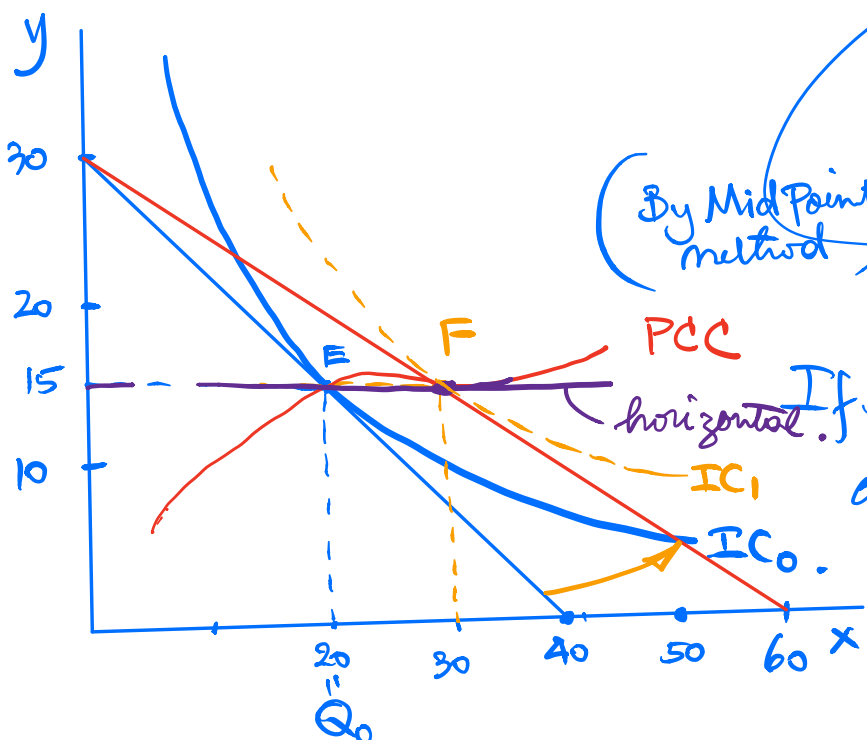
60

X

Properties of PCC.

- 1) A PCC does not have to pass through the origin.
- 2) With a different Income I (or P_y) we will have a different PCC.
- 3) A PCC can be found from varying P_y and keeping P_x & I fixed.
- 4) 2 PCC's can intersect or be tangent to each other.
- 5) PCC can give the η_x (Price Elasticity of X) with (I and P_y fixed)

$$\eta_x = \frac{\% \Delta Q_x}{\% \Delta P_x}$$



$P_x = 3 \Rightarrow P'_x = 2.$
 $3x + 4y = 120.$
 $E = (20, 15)$

(By Mid Point method) $\rightarrow \% \Delta P = \frac{2-3}{(2+3)/2} = \frac{-1}{2.5} = -0.4 = -40\%.$

If $\eta_x = 1 = \frac{\% \Delta Q_x}{\% \Delta P_x}$

all have to have $\% \Delta Q_x = 0.4.$

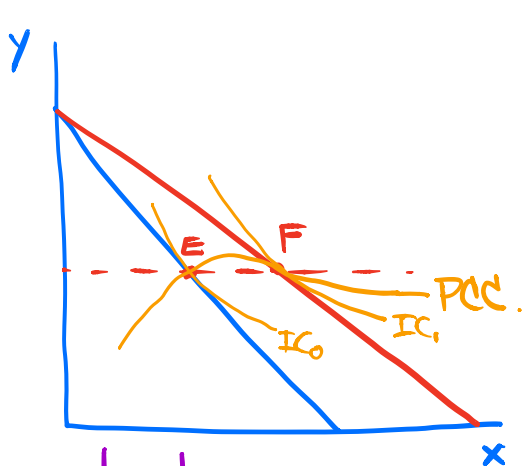
$= \frac{Q_1 - Q_0}{(Q_1 + Q_0)/2} = 0.4$

$= \frac{Q_1 - 20}{(Q_1 + 20)/2} = 0.4$

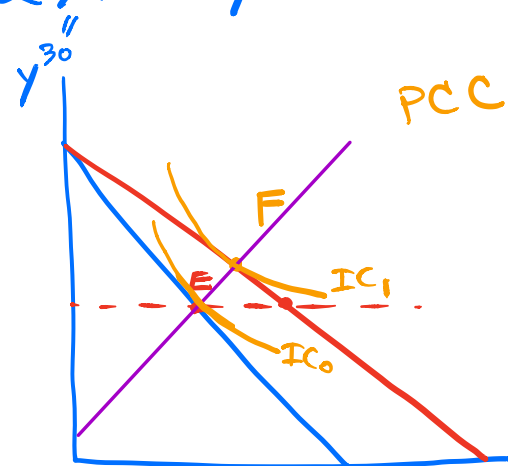
$\Rightarrow Q_1 = 30 = x$

If $x = Q_1 = 30, P_y = 4, I = 120 \Rightarrow y = 15$

$2x + 4y = 120.$



$|\eta_x| = 1$



$|\eta_x| < 1$ - Demand of X is inelastic.

H.W.. Demonstrate how PCC with varying P_Y (fixed $P_X + I$) can give us the Price Elasticity of Y to be equal to, less than, greater than 1 in absolute value.