HW#9 Due April 22, 2021

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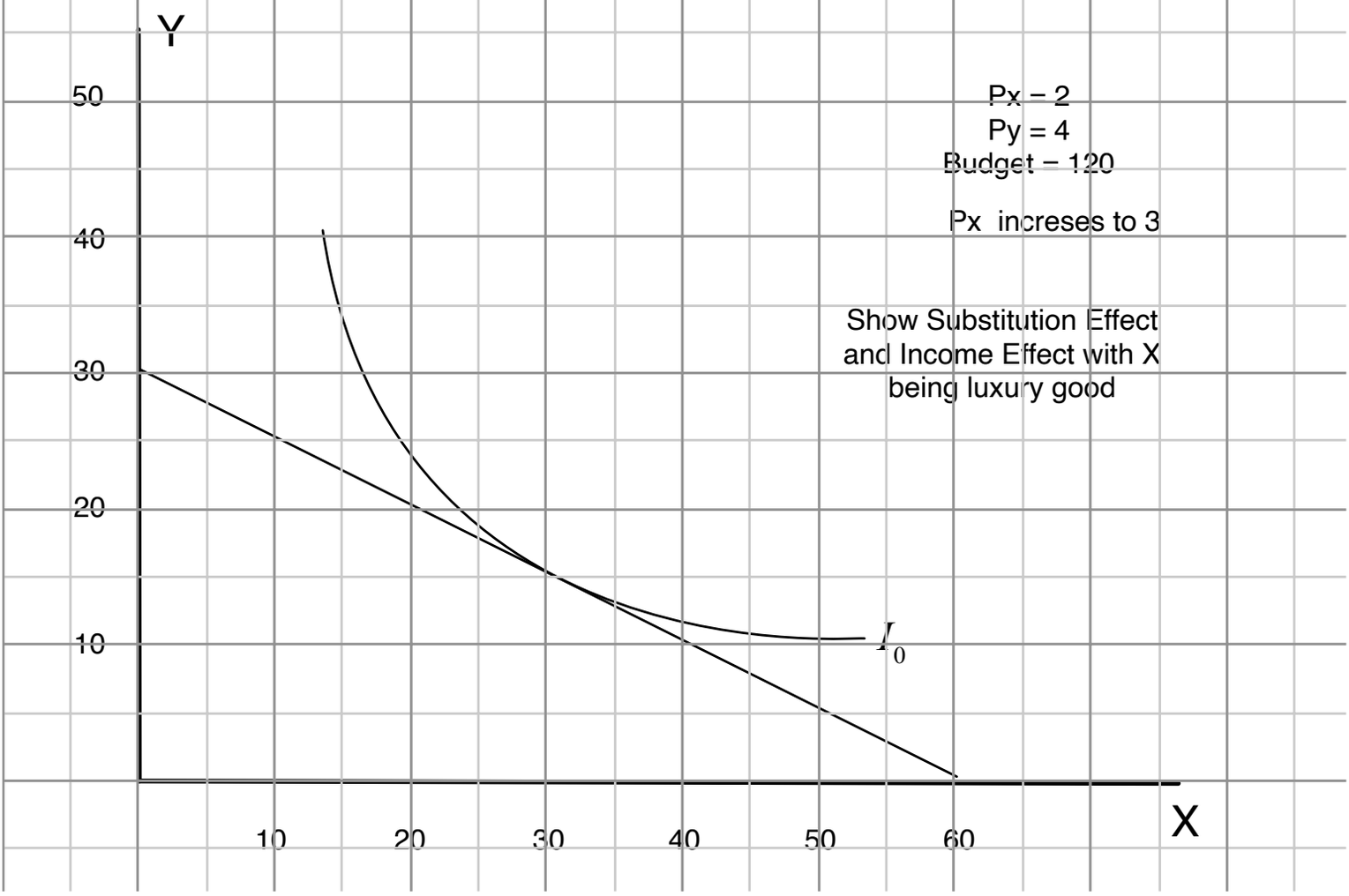
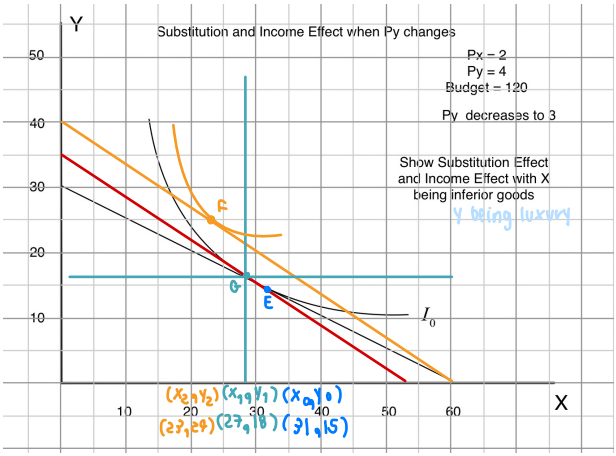


1.



old

$XP_X + YP_Y = B$

$2X + 4Y = 120$

$Y = -\frac{1}{2}X + 30$

y intercept = 30

x intercept = 60

new

$XP_X + YP_Y = B$

$2X + 3Y = 120$

$Y = -\frac{2}{3}X + 40$

y intercept = 40

x intercept = 60

step by step (Substitute product)

- Equilibrium change from E to F, P_Y decrease (consume less x and more y)
- relative price (slope) changes from $-\frac{1}{2}$ to $-\frac{2}{3}$
- so we draw imaginary budget line on same IC

S.E. = $\begin{cases} \Delta X = X_1 - X_0 = 27 - 31 = -4 < 0 \\ \Delta Y = Y_1 - Y_0 = 18 - 15 = 3 > 0 \end{cases}$

- move new imaginary budget line up, draw new IC

I.E. = $\begin{cases} \Delta X = X_2 - X_1 = 23 - 27 = -4 < 0 \\ \Delta Y = Y_1 - Y_0 = 18 - 15 = 3 > 0 \end{cases}$

} more real income

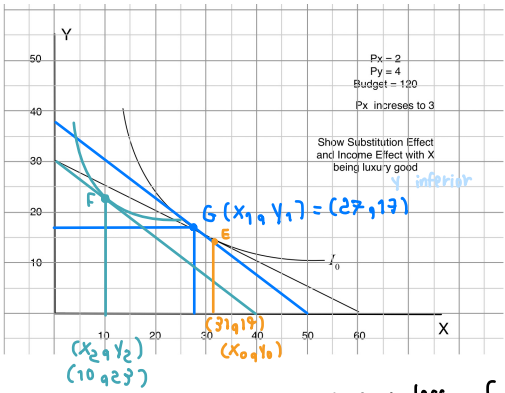
- consume less x, more y
- x is inferior, y is luxury

- Total Effect = S.E + I.E

T.E. = $\Delta X = X_2 - X_0 = 23 - 31 = -8$

$\Delta Y = Y_2 - Y_0 = 24 - 15 = 9$

2.



old

$XP_X + YP_Y = B$

$2X + 4Y = 120$

$4Y = -2X + 120$

$Y = -\frac{1}{2}X + 30$

y intercept = 30

x intercept = 60

new

$XP_X + YP_Y = B$

$3X + 4Y = 120$

$4Y = -3X + 120$

$Y = -\frac{3}{4}X + 30$

y intercept = 30

x intercept = 40

step by step (Substitute)

- Equilibrium change from E to F, P_X increase → consume less, more X
- relative price (slope) changes from $-\frac{1}{2}$ to $-\frac{3}{4}$
- so we draw imaginary budget line on same IC

S.E. = $\begin{cases} \Delta X = X_1 - X_0 = 27 - 31 = -4 < 0 \\ \Delta Y = Y_1 - Y_0 = 17 - 19 = -2 > 0 \end{cases}$

I.E. = $\begin{cases} \Delta X = X_2 - X_1 = 10 - 27 = -17 < 0 \\ \Delta Y = Y_2 - Y_1 = 23 - 17 = 6 > 0 \end{cases}$

} less real income

- consume less x more y
- x is luxury, y is inferior

- move new imaginary budget line up, draw new IC

- total Effect = S.E + I.E

T.E. = $\Delta X = X_2 - X_0 = 10 - 31 = -21$

$\Delta Y = Y_2 - Y_0 = 23 - 19 = 4$