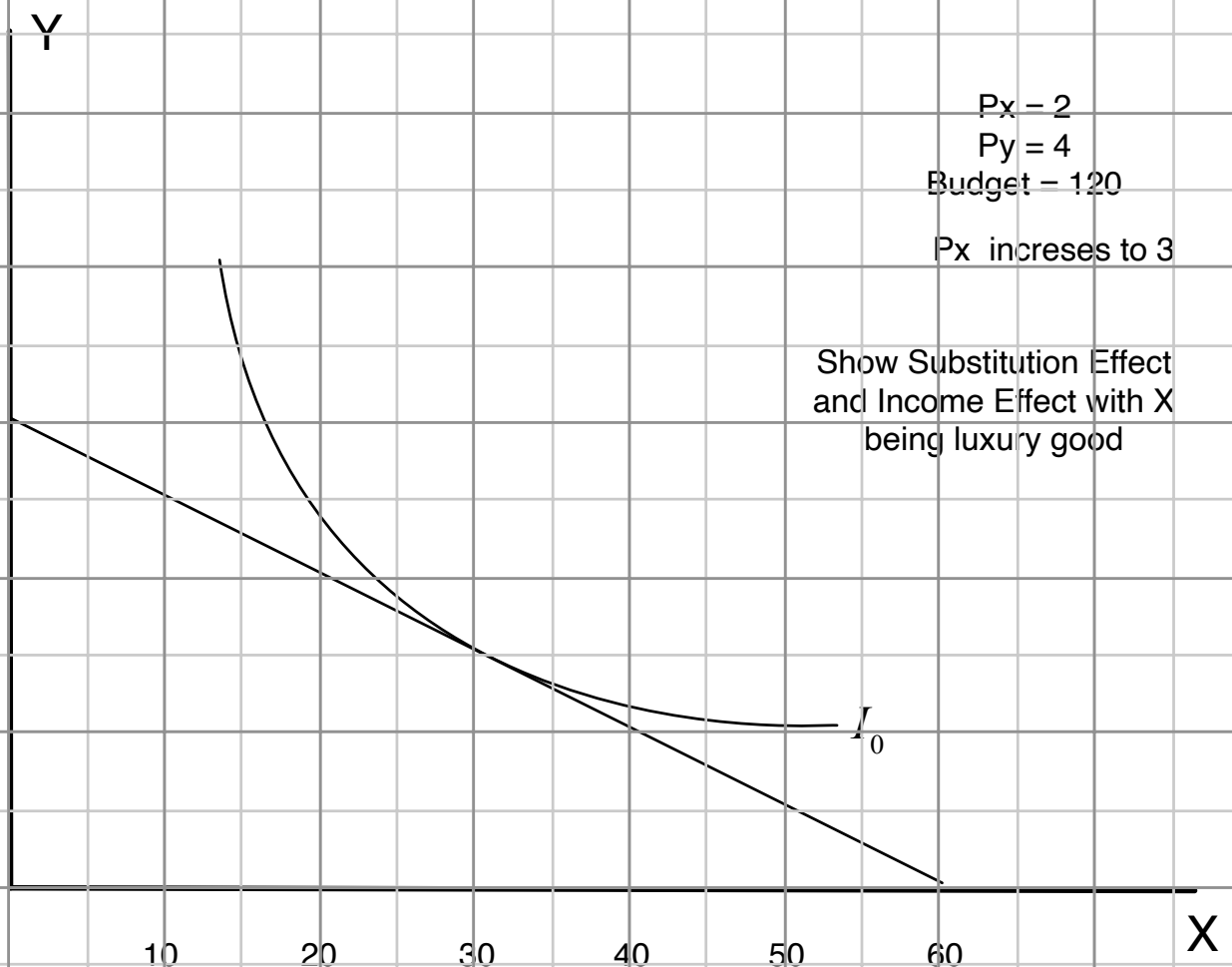
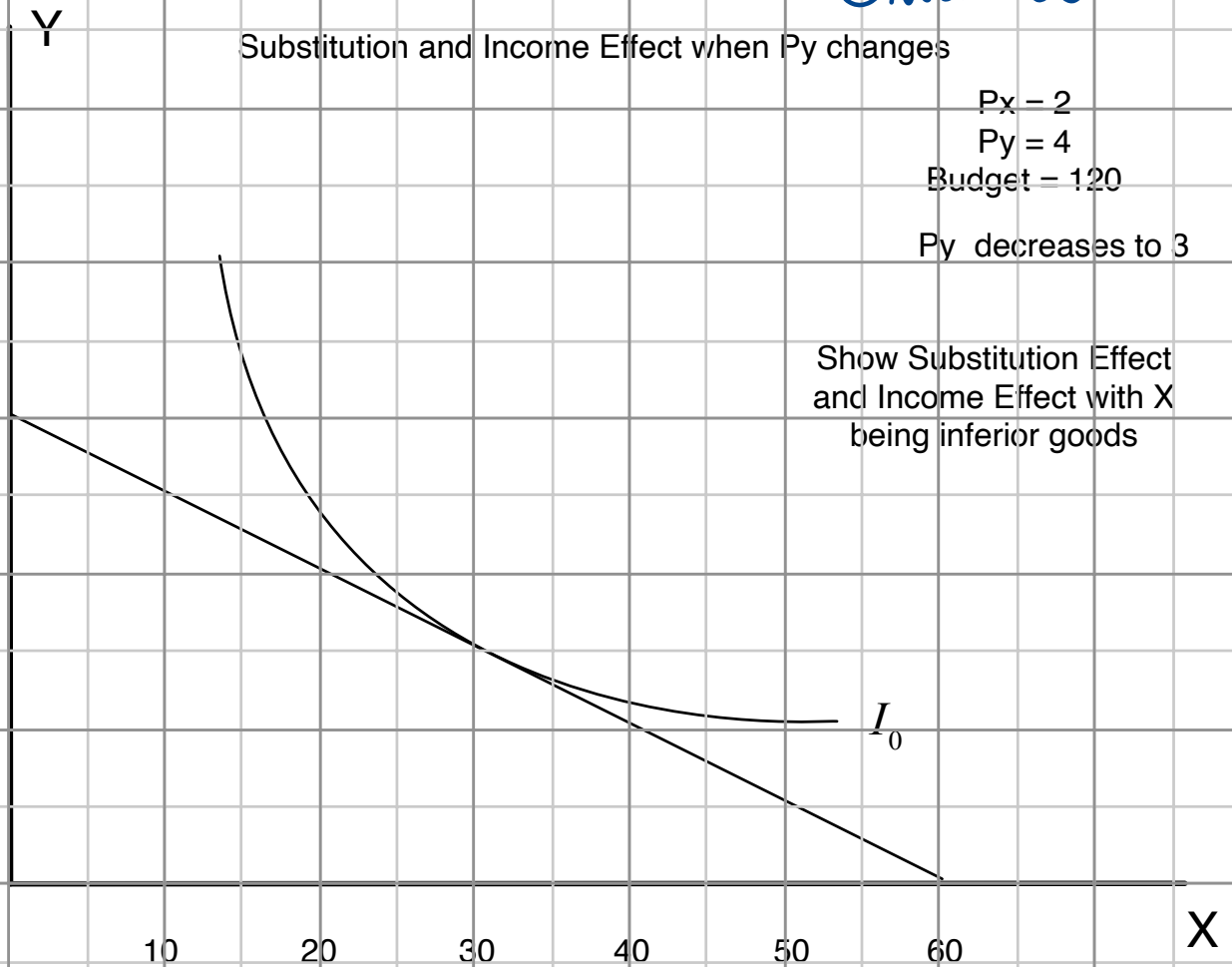
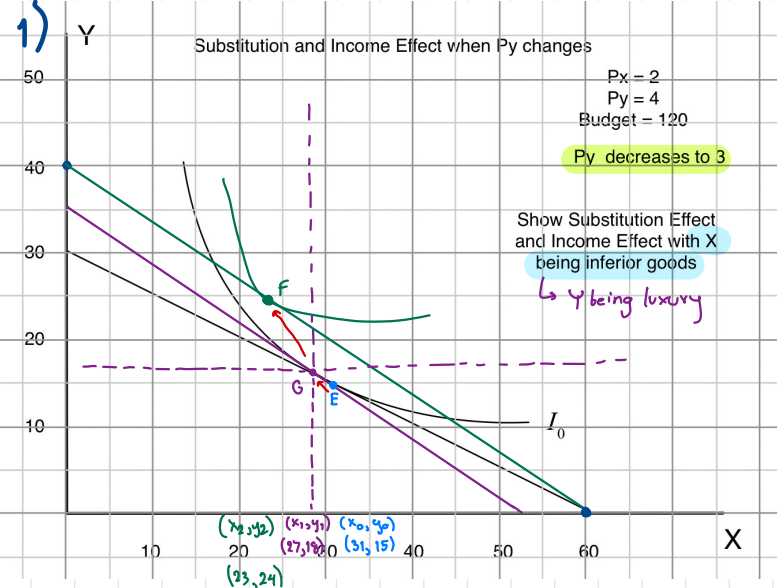






old

$$X P_x + Y P_y = B$$

$$2x + 4y = 120$$

$$4y = -2x + 120$$

$$y = -\frac{1}{2}x + 30$$

new

$$X P_x + Y P_y = B$$

$$2x + 3y = 120$$

$$3y = -2x + 120$$

$$y = -\frac{2}{3}x + 40$$

$$y_{int} (x=0) = 40$$

$$x_{int} (y=0) = 60$$

Step by step

- Equilibrium change from E to F, P_y decrease $\Rightarrow$ consume less x and more y $\Rightarrow$ x and y are substitute product
- 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

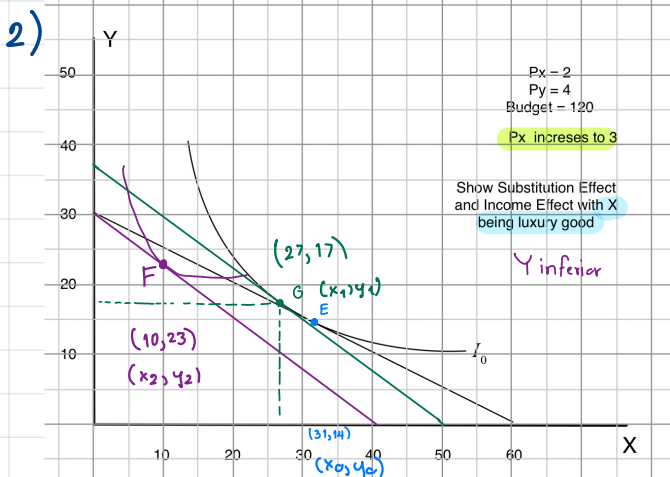
$$I.E. : \begin{cases} \Delta x = x_2 - x_1 = 23 - 27 = -4 < 0 \\ \Delta y = y_2 - y_1 = 24 - 18 = 6 > 0 \end{cases}$$

more real income $\Rightarrow$ consume less x, more y
 $\Rightarrow$ x is inferior, y is luxur

- Total Effect = S.E. + I.E.

$$T.E. : \Delta x = x_2 - x_0 = 23 - 31 = -8$$

$$\Delta y = y_2 - y_0 = 24 - 15 = 9$$



old

$$X P_x + Y P_y = B$$

$$2x + 4y = 120$$

$$4y = -2x + 120$$

$$y = -\frac{1}{2}x + 30$$

new

$$X P_x + Y P_y = B$$

$$3x + 4y = 120$$

$$4y = -3x + 120$$

$$y = -\frac{3}{4}x + 30$$

$$y_{int} = 30$$

$$x_{int} = 40$$

Step by step

- Equilibrium change from E to F, P_x increase $\Rightarrow$ consume less x and more y $\Rightarrow$ x and y are substitute product
- relative price (slope) changes from $-\frac{1}{2}$ to $-\frac{3}{4}$
- so we draw imaginary budget line on same IC

$$S.E. : \begin{cases} \Delta x = x_1 - x_0 = 27 - 31 = -4 < 0 \\ \Delta y = y_1 - y_0 = 17 - 14 = 3 > 0 \end{cases}$$

- move new imaginary budget line up, draw new IC

$$I.E. : \begin{cases} \Delta x = x_2 - x_1 = 10 - 27 = -17 < 0 \\ \Delta y = y_2 - y_1 = 23 - 17 = 6 > 0 \end{cases}$$

less real income $\Rightarrow$ consume less x, more y
 $\Rightarrow$ x is luxury, y is inferior

- Total Effect = S.E. + I.E.

$$T.E. : \Delta x = x_2 - x_0 = 10 - 31 = -21$$

$$\Delta y = y_2 - y_0 = 23 - 14 = 9$$