HW#9 Due April 22, 2021

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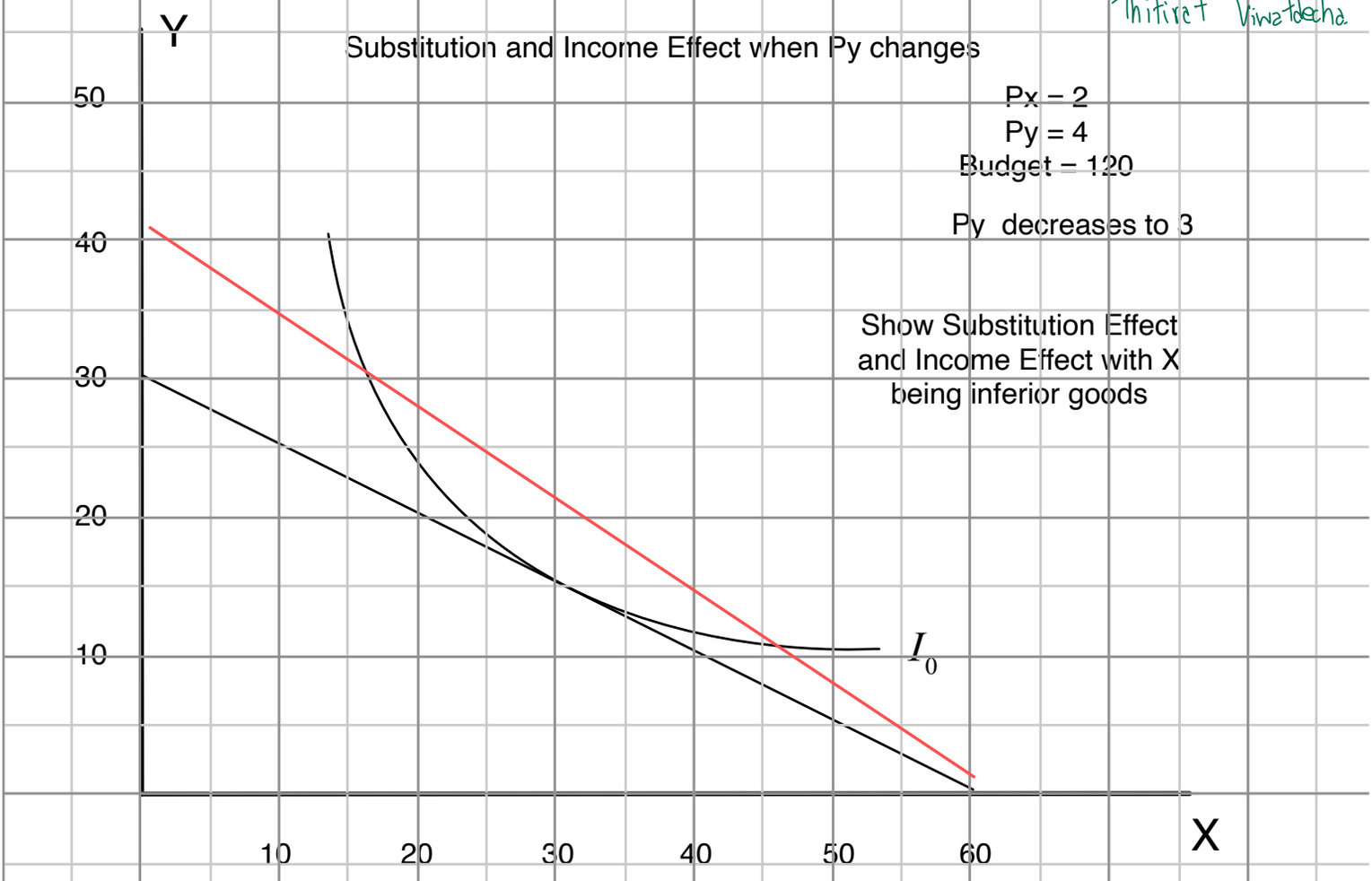
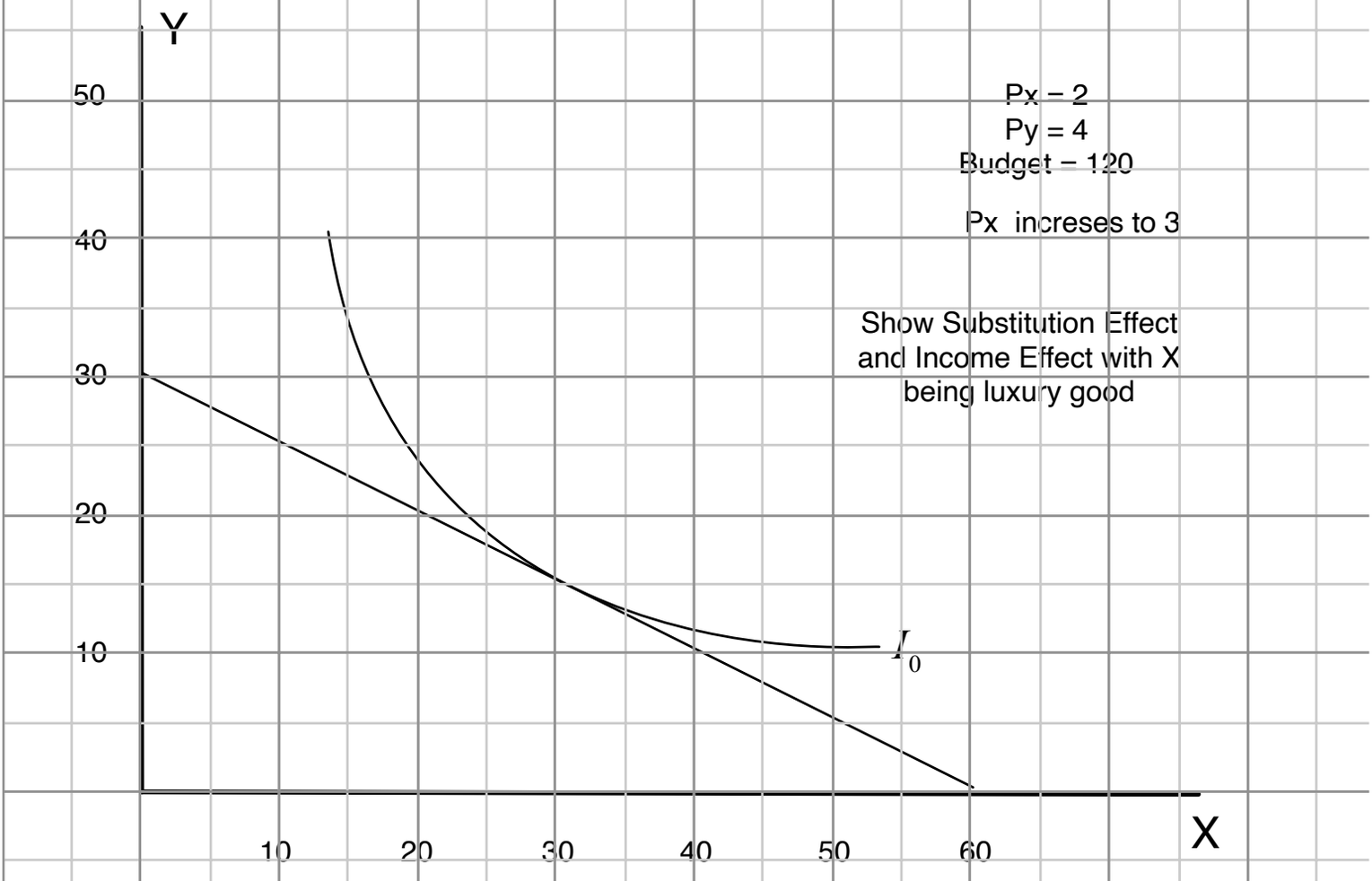
Thitirat Viwatdecha



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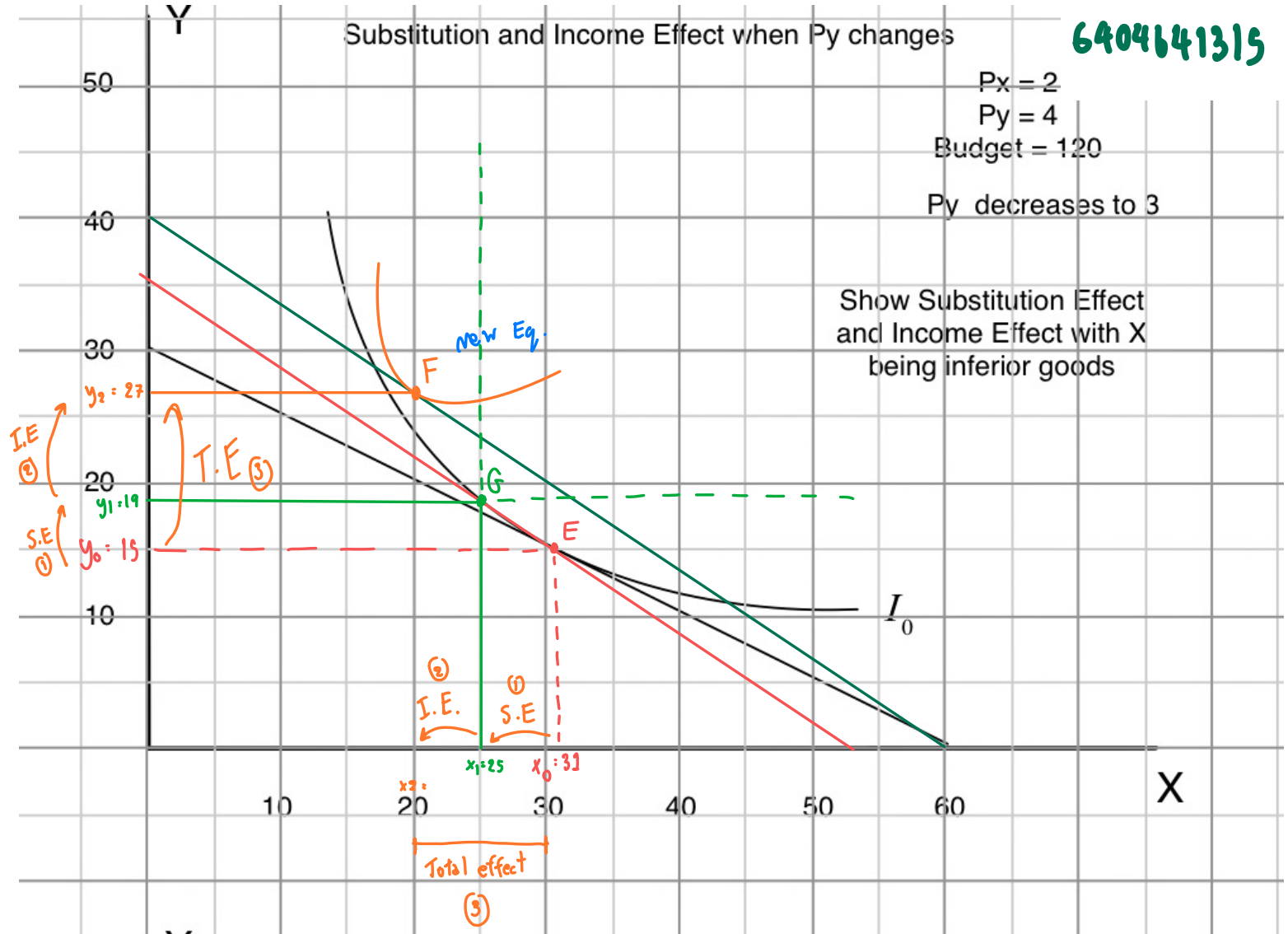
## Substitution and Income Effect when Py changes

Px = 2
Py = 4
Budget = 120

Py decreases to 3

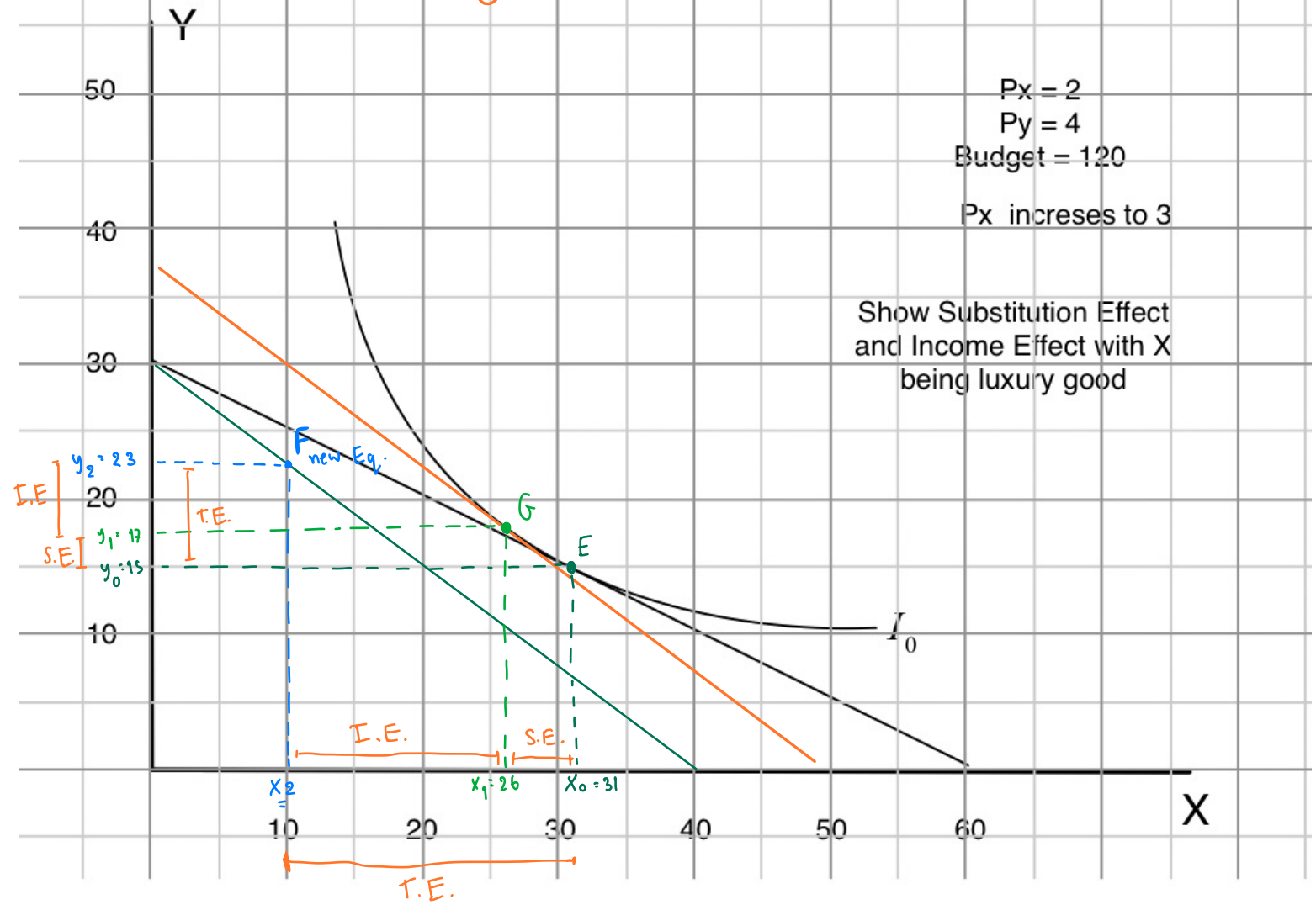
Show Substitution Effect and Income Effect with X being inferior goods




Px = 2
Py = 4
Budget = 120

Px increses to 3

Show Substitution Effect and Income Effect with X being luxury good



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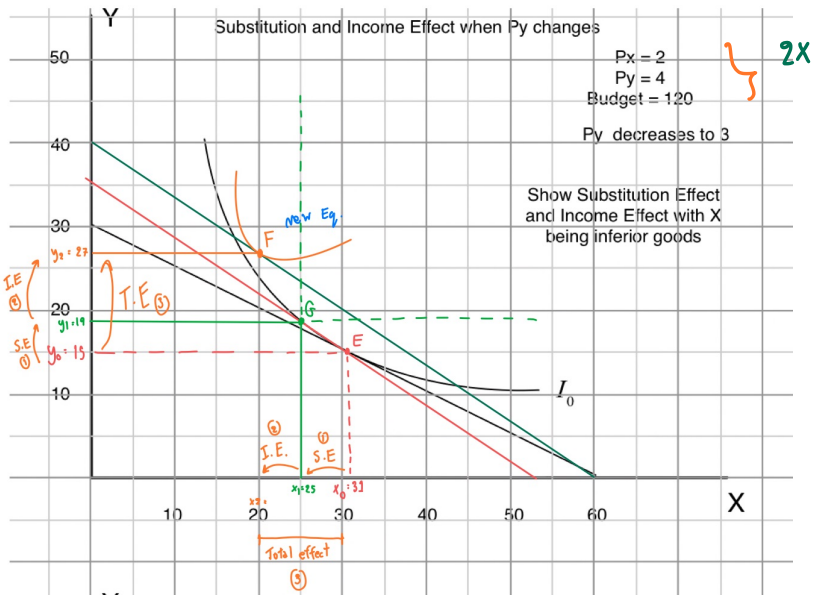
① y decrease to 3




$2x + 4y = 120$ | $x:0, y:30$ | $y:0, x:60$

$2x+3y=120$ | $x:0, y:40$ | $y:0, x:60$

S.E : $\Delta x = x_1 - x_0 = 25-31 = -6 < 0$
$\Delta y = y_1 - y_0 = 19-15 = 4 > 0$

I.E. : $\Delta x = x_2 - x_1 = 20-25 = -5 < 0$
$\Delta y = y_2 - y_1 = 27-19 = 8 > 0$

T.E : $\Delta x = x_2 - x_0 = 20-30 = -10 < 0$
$\Delta y = y_2 - y_0 = 27-15 = 12 > 0$

- when $P_y$ decrease → consume more of y and less of x
  - ↳ means that x and y are substitute.
  - ↳ more real income → consume less of x and more of y
    (y = luxury, x = inferior)

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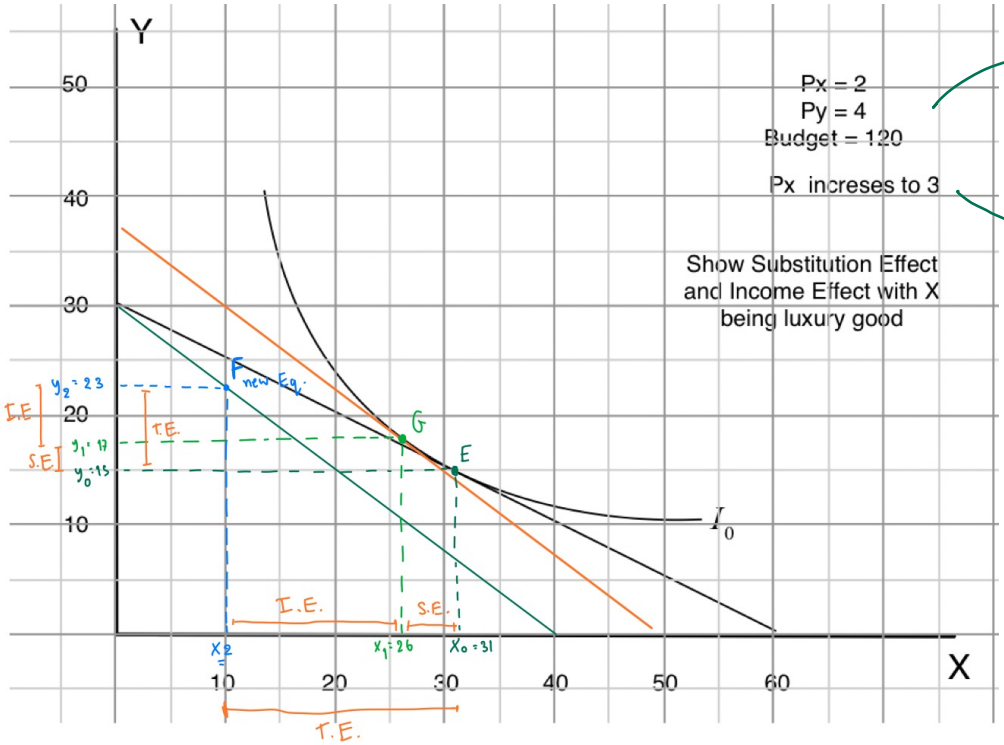


$2x+4y=120$
$x=0, y=30$
$y=0, x=60$

$3x+4y=120$
$x=0, y=30$
$y_0, x=40$
} new

S.E $= x_1 - x_0 = 26-31 = -5 < 0$
$y_1 - y_0 = 17-15 = 2 > 0$

I.E $= x_2 - x_1 = 10-26 = -16 < 0$
$y_2 - y_1 = 23-17 = 6 > 0$

T.E. $= x_2 - x_0 = 10-31 = -21 < 0$
$y_2 - y_0 = 23-15 = 8 > 0$

- when $P_x$ increase → consume less of x and more of y
  - ↳ x and y are substitute
  - ↳ when real income decrease → consume less of x and more of Y
    (x = luxury, y = inferior)