LABORATORIO #1 - DAVID CORZO - 20190432 - 2020-01-30

1)

$80 por habitación

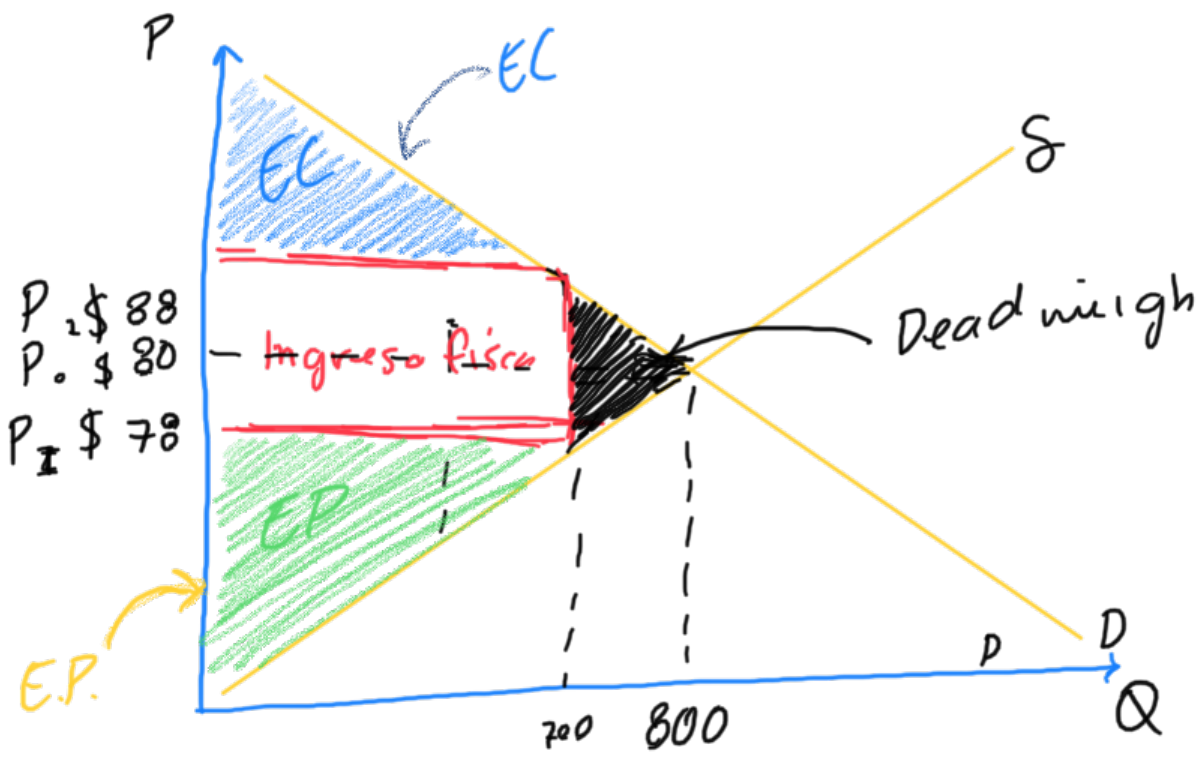
800 habitaciones

$10 de impuesto por habitación

$88 tras impuesto

habitaciones cae a 700

a) # Cantidad de ingresos fiscales

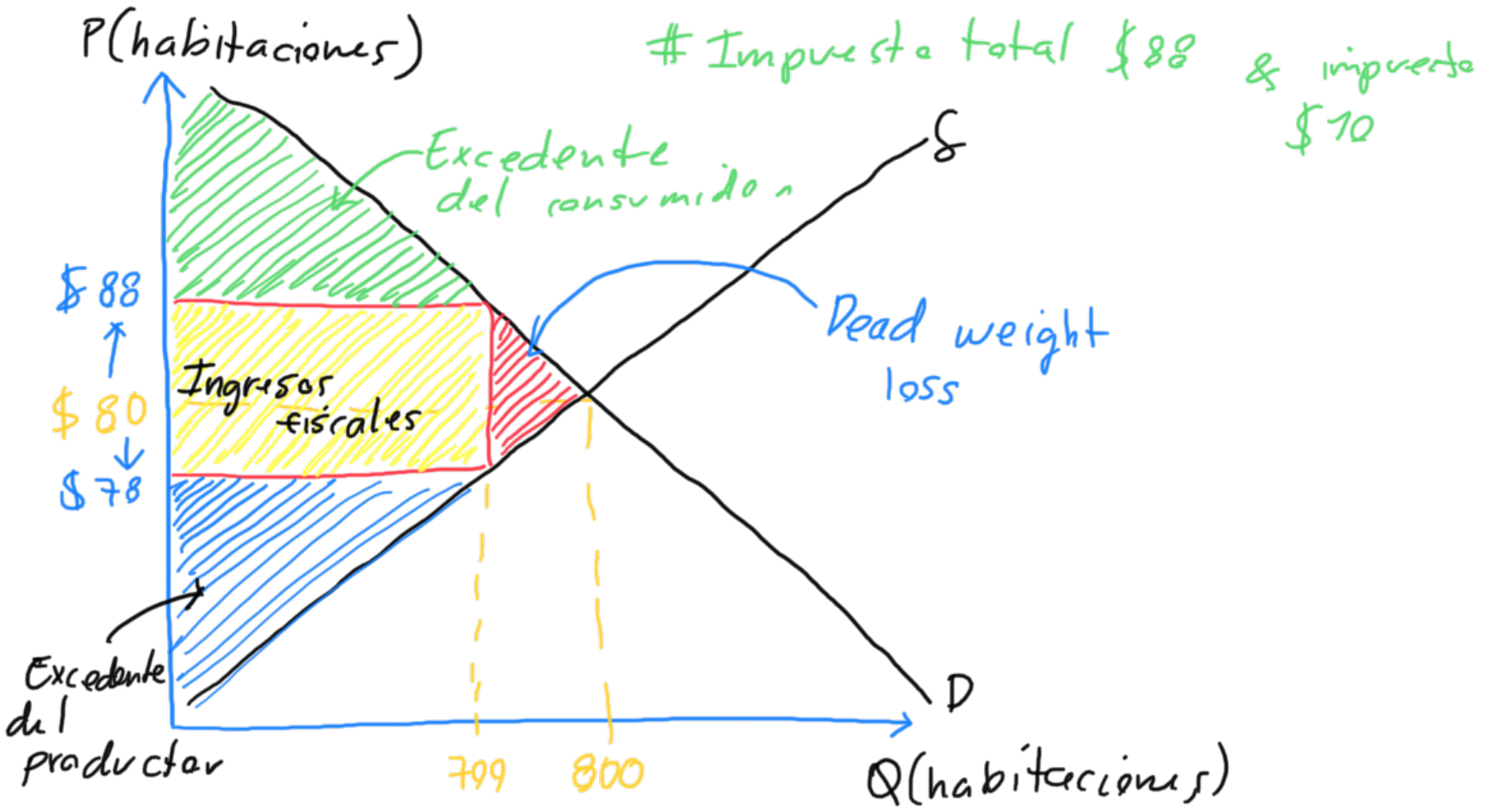


Cálculo de ingresos fiscales

$C_{IF} = 10 * 700 = 7{,}000$ de ingresos fiscales en dólares.

$D_W = 100 * 10 = 1{,}000 \cdot \frac{1}{2} = \$500$ dead weightloss

Resolución de clase



Ingresos fiscales = área del rectángulo

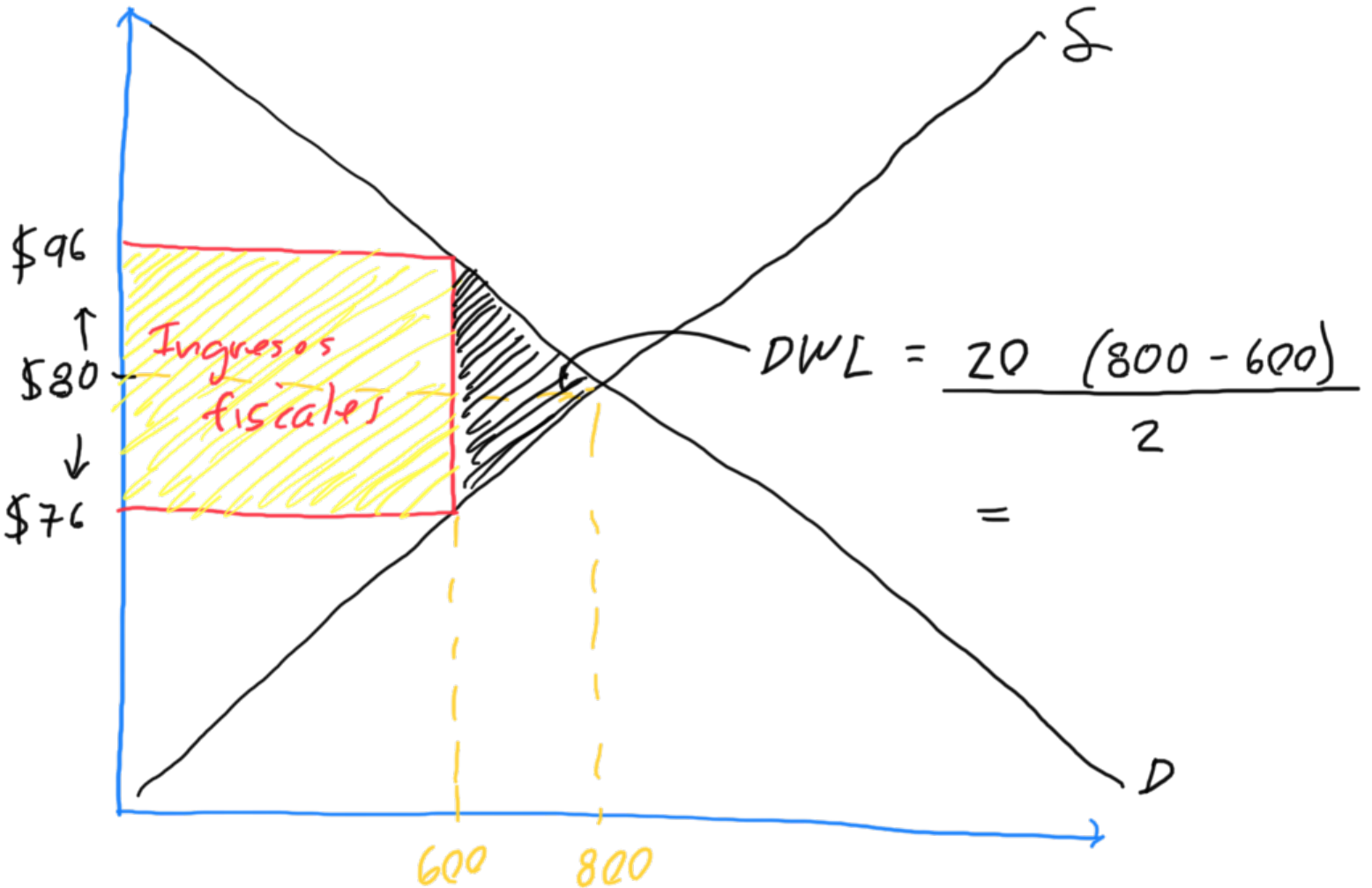
$= 10 * 700 = 7,000$

Dead weight loss = $\frac{\text{base} * \text{altura}}{2}$

$= \frac{10 * (800-700)}{2}$

$= \$ 500$

Qué pasa si el impuesto es $20

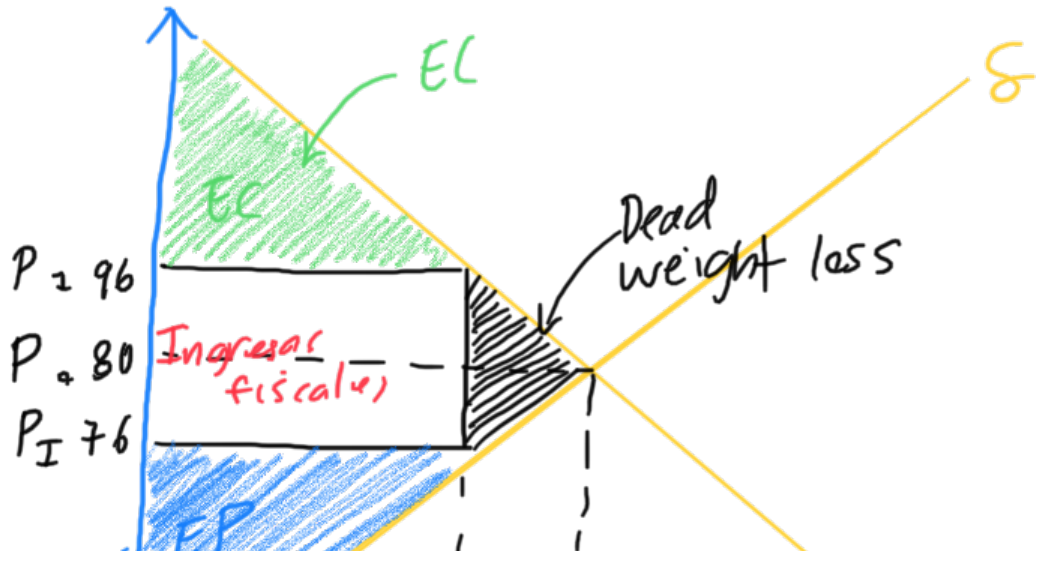


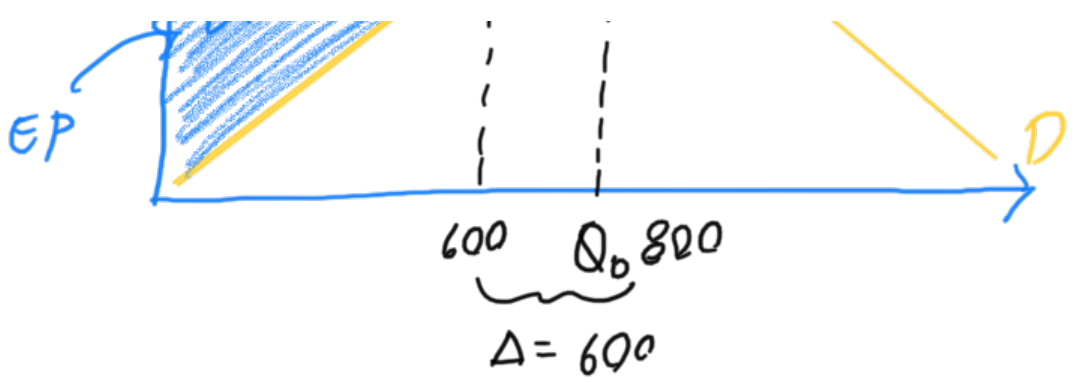
Fin resolución clase

b) # Impuesto ↑ a $20

Precio ↑ $96 por habitación.

habitaciones rentadas baja a 600





$C_{IF} = 20 \times 600 = 12{,}000$ $ de ingreso fiscal

$D_w = 20 * 200 * \frac{1}{2} = 2{,}000$ $ de dead weigh loss

2) # Demanda de aceite de coco

a) $Q = 1{,}200 - 9.5p + 16.2pp + 0.2Y$.

Q de aceite

p precio en centavos

pp aceite palma

Y ingreso de consumidores

Suponer $p = 45¢$

$pp = 31¢$

$Q = 1{,}275$

$Q = 1200 - 9.5(45) + 16.2(31) + 0.2Y$

$Q = 1274.7 + 0.2Y$

$1275 - 1274.7 = 0.2Y$

$\frac{1275 - 1274.7}{0.2} = Y$

$\frac{3}{2} = Y$

derivar respecto de Y

$$Q' = 0 - 0 + 0 + 0.2$$

$$Q' = 0.2$$

$$\frac{\Delta Q}{\Delta Y} = \frac{1}{5}$$

Remplazar

$$E_I = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q}$$

$$E_I = \frac{1}{5} * \left[\frac{\frac{3}{2}}{\frac{1275}{?}}\right] = \frac{1}{5} * \left[\frac{3}{2 \cdot 1'275}\right] = \frac{1}{5} * \frac{3}{2550} = \frac{1}{4250} = \dots$$

$$\approx 0.000235294$$

$\therefore E_I \in \mathbb{R}^+ \Rightarrow$ es positivo es un bien normal.

b)

$$E_p = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

$$Q = 1{,}200 - 9.5p + 16.2pp + 0.2Y$$

$$Q' = 0 - 9.5 + 0 + 0$$

$$Q' = -9.5 \leftarrow \frac{\Delta Q}{\Delta P}$$

$$E_p = -9.5 \cdot \frac{45}{1275} \approx -0.335294117 6$$

$\therefore$ Inelástico $1 <$

c)

$$16.2 \cdot \frac{31}{1275} \approx 0.393882\ 3529$$

$\therefore$ Bienes sustitutos

Resolución clase:

$$Q = 1200 - 9.5p + 16.2pp + 0.2Y$$

#

$p = 45$

$pp = 31$

$Q = 1275$

$$1275 = 1200 - 9.5(45) + 16.2(31) + 0.2Y$$

$$Y = 1.5$$

Elasticidad ingreso

$$\varepsilon_Y = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q}$$

$$\varepsilon_Y = \frac{dQ}{dY} \cdot \frac{Y}{Q}$$

$$\varepsilon_Y = 0.2 \cdot \frac{1.5}{1.275} = \underline{0.00023}$$

¿Qué tipos de bienes son?

$\varepsilon_Y \in \mathbb{R}^+$ = normal

$\varepsilon_Y \in \mathbb{R}^-$ = inferior

```
if (εY ∈ ℝ+) {
  bien normal;
} else {
  bien inferior
}
```

Elasticidad Precio

$$\varepsilon_P = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

$$\varepsilon_p = -9.5 \cdot \frac{45}{1275}$$

$$= -0.34 \} \text{ inelástica}$$

```
if (εp < 1) {
    inelástica;
} else {
    elastica;
}
```

Elasticidad Cruzada

$$\varepsilon_c = \frac{\Delta Q}{\Delta P_{pp}} \cdot \frac{P_{pp}}{Q}$$

La derivada de Q con
Respecto al aceite de palma.

$$\varepsilon_c = 16.2 \cdot \frac{31}{1275} = \underbrace{0.39}_{\text{sustituto}}$$

```
if (εc ∈ ℝ+) {
    bienes sustitutos;
} else {
    bienes complementos;
}
```

Fin de resolución

3) a) $U = BC$

B, hamburguesas
C, cigarros semanales

TMS : pendiente de la RP

$$T_{ms} = -\frac{B}{C}$$

b) $120 = 2B + 1C$

TMT : Tangente a curva de indiferencia

$$T_{MT} = -2$$

c) $TMS = TMT$

$$\not{-}\frac{B}{C} = \not{-}2$$

$$\frac{B}{C} = 2$$

$$\boxed{B = 2c}$$

$$\frac{B}{C} = 2$$

$$\boxed{\frac{B}{2} = C}$$

Remplazar en ec.

$$120 = 2(2c) + C$$

$$120 = 4c + C$$

$$120 = 5c$$

$$\frac{120}{5} = C$$

$$\boxed{c = 24}$$

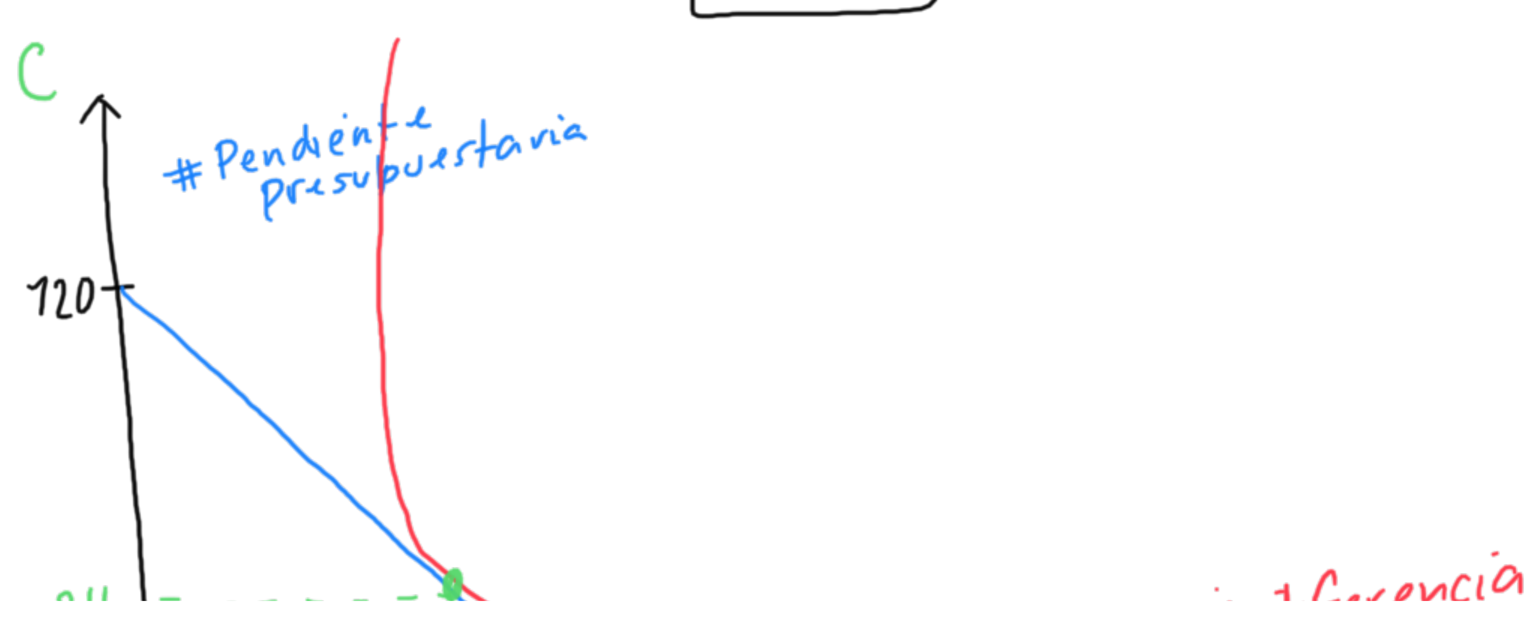
$$120 = 2B + 24$$

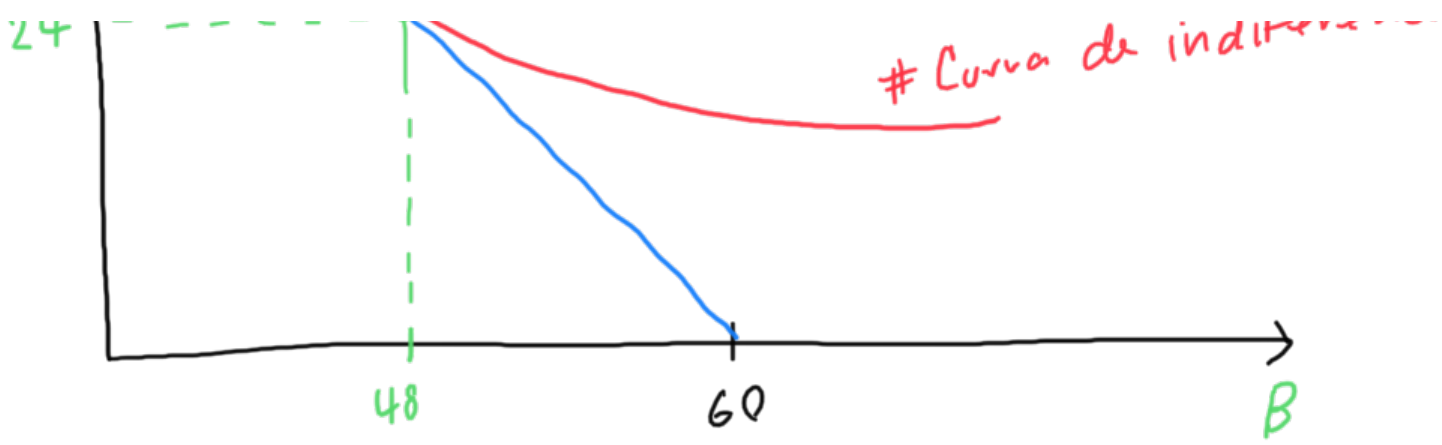
$$120 - 24 = 2B$$

$$96 = 2B$$

$$\frac{96}{2} = B$$

$$\boxed{48 = B}$$





D) $-\frac{B}{C} = -3$ # Impuesto de $3

$+\frac{B}{C} = +3$

$\frac{B}{C} = 3$

$B = 3C$

Sustituyo en ecuación

$120 = 3(3C) + C$

$120 = 9C + C$

$120 = 10C$

$\frac{120}{10} = C$

$12 = C$

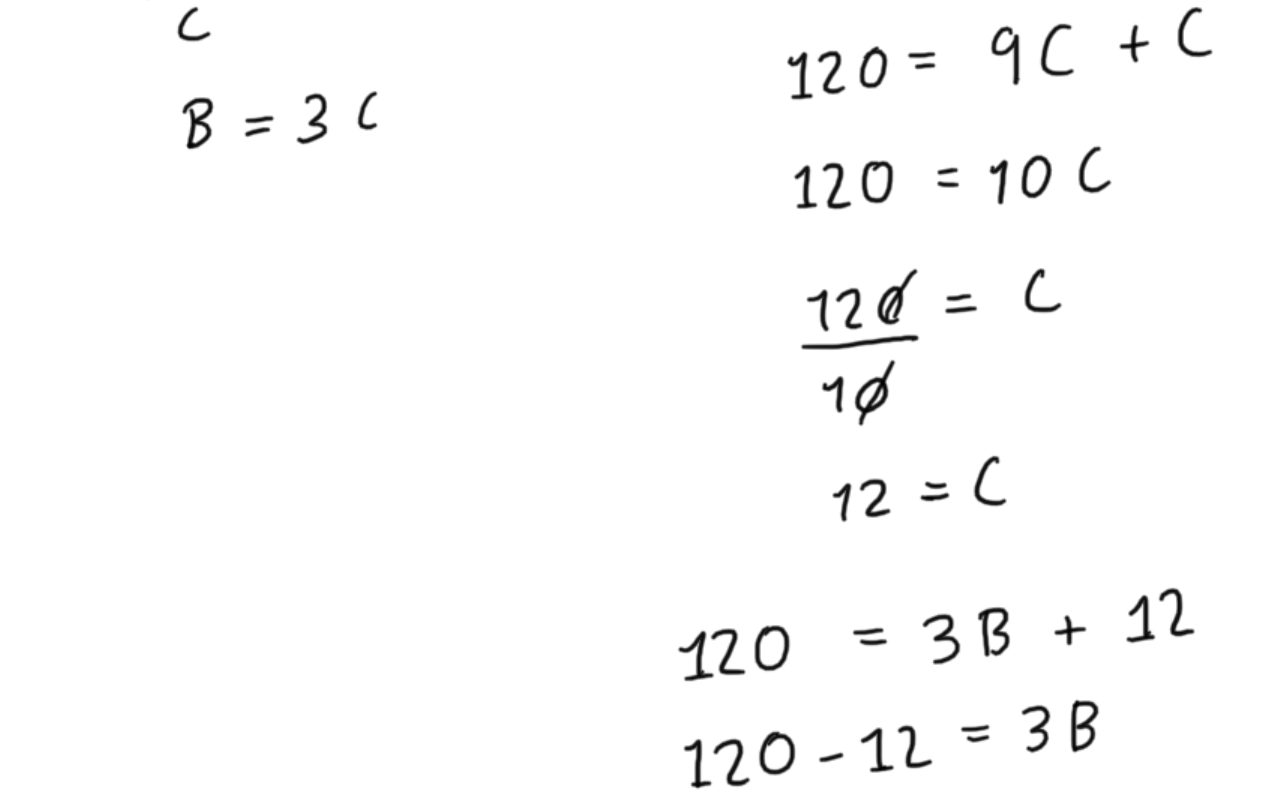
$120 = 3B + 12$

$120 - 12 = 3B$

$108 = 3B$

$\frac{108}{3} = B$

$B = 36$



Resolución de clase:

Restricción presupuestaria:

$U = BC$

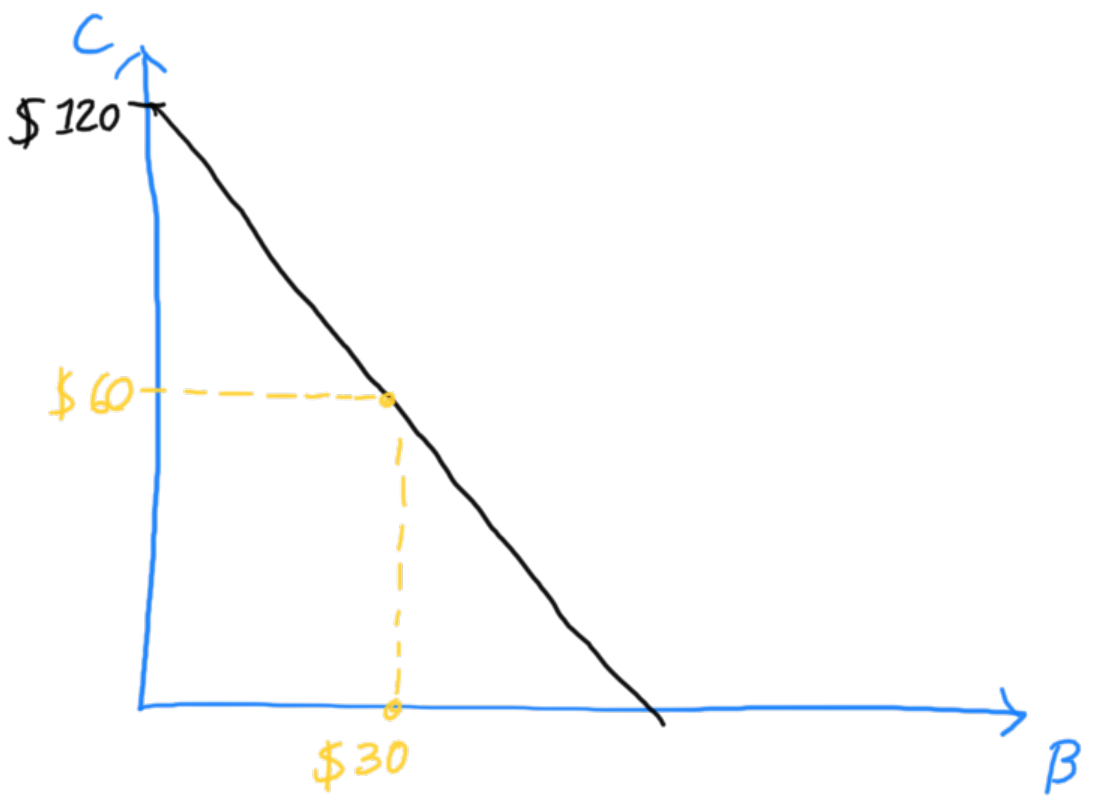
$Y = \$120$

$P_B = \$2$

$P_C = \$1$

$$Y = Q_B P_B + Q_C P_C$$

a) $120 = 2B + C$



b) $$TMT = \frac{P_B}{P_C}$$

$$TMT = -\frac{2}{1} = -2$$

c) $$TMS = -\frac{UM_B}{UM_C}$$

$$TMS = \frac{\frac{du}{dB}}{\frac{du}{dC}} = \frac{C}{B}$$

Arriba siempre ira X.

D) # Igualar $TMS = TMT$

Para ver el punto óptimo

$$-2 = -\frac{C}{B}$$

$$2B = C$$

Sustituir en restricción presupuestaria

$120 = 2B + C$

$120 = 2B + 2B$

$120 = 4B$

$30 = B$

$C = 60$

Fin de resolución

4) $U(x,z) = 10x^2 z$

Bien x es de $10

Bien z es de $5

Ingreso es $150

a) Restricción presupuestaria:

Ec. RP

$150 = 10x + 5z$

Asumir $x = 0$

$150 = \cancel{10(0)} + 5z$

$150 = 5z$

$\frac{150}{5} = z$

$z = 30$

Asumir $y = 0$

$150 = 10x + \cancel{5(0)}$

$150 = 10x$

$\frac{150}{10} = x$

$x = 15$

$\therefore$ Interceptos en $(0,30)$ & $(15,0)$

b) TMT

$Tmt = -\frac{10}{5} = \boxed{-2}$

c) TMS

$TMS = -\frac{10x^2}{20xz} = -\frac{10 \cancel{x} \cdot x}{20 \cancel{x} \cdot z} = -\frac{1}{2} \cdot \frac{x}{z} = -\frac{x}{2z}$

D) Combinación óptima: $TMT = TMS$:

$$f\ 2 = f\frac{x}{2z}$$

$$2 = \frac{x}{2z}$$

$$4z = x$$

$$150 = 10x + 5z$$

$$150 = 10(4z) + 5z$$

$$150 = 40z + 5z$$

$$150 = 45z$$

$$\frac{150}{45} = z$$

$$\approx 3.33$$

$$150 = 10x + 5(3.33)$$

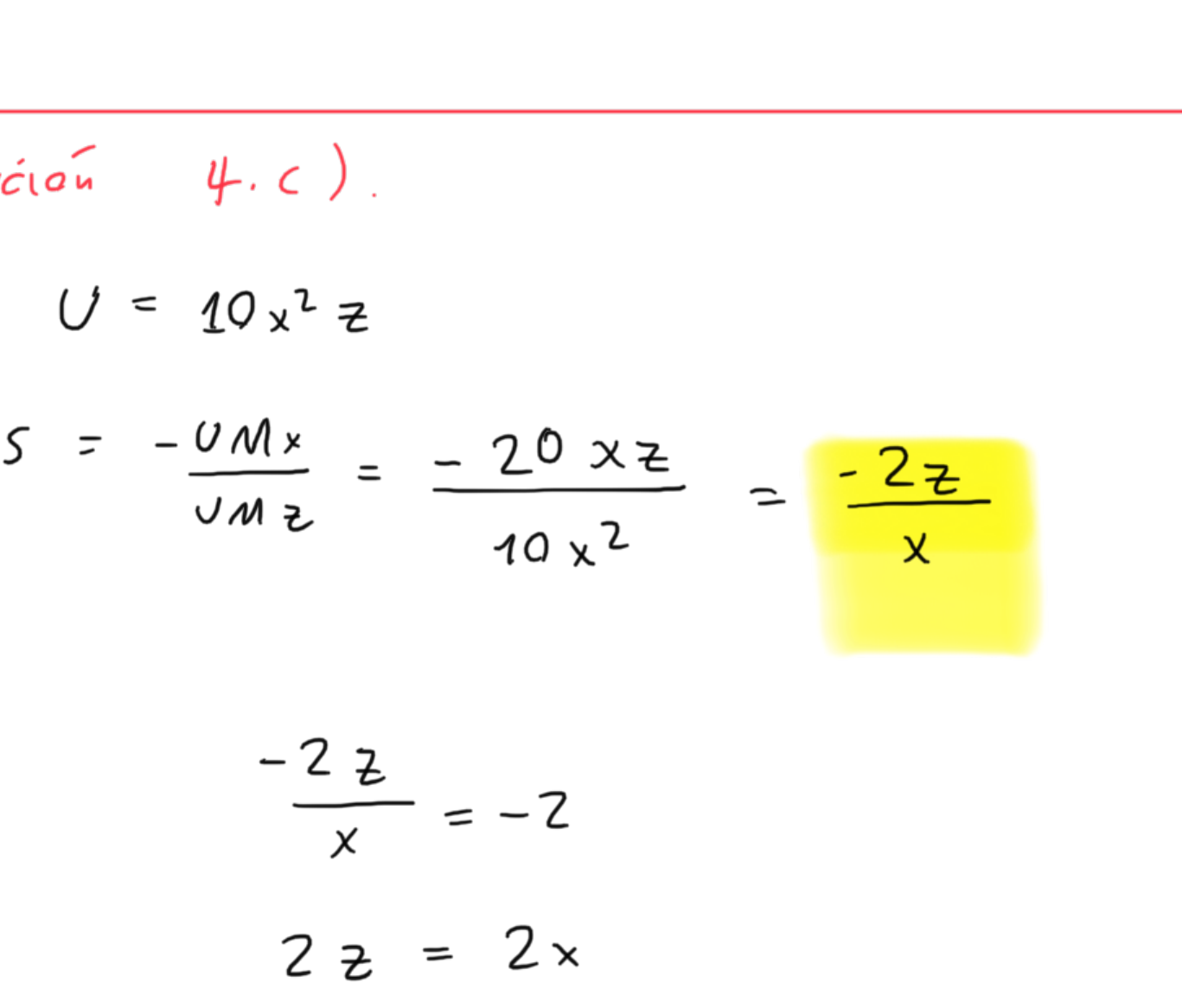
$$150 - 16.65 = 10x$$

$$133.33 = 10x$$

$$\frac{133.33}{10} = x$$

$$x \approx 13.333$$

e)



Resolución 4. c).

$$U = 10x^2 z$$

$$TMS = -\frac{UMx}{UMz} = \frac{-20xz}{10x^2} = \frac{-2z}{x}$$

$$\frac{-2z}{x} = -2$$

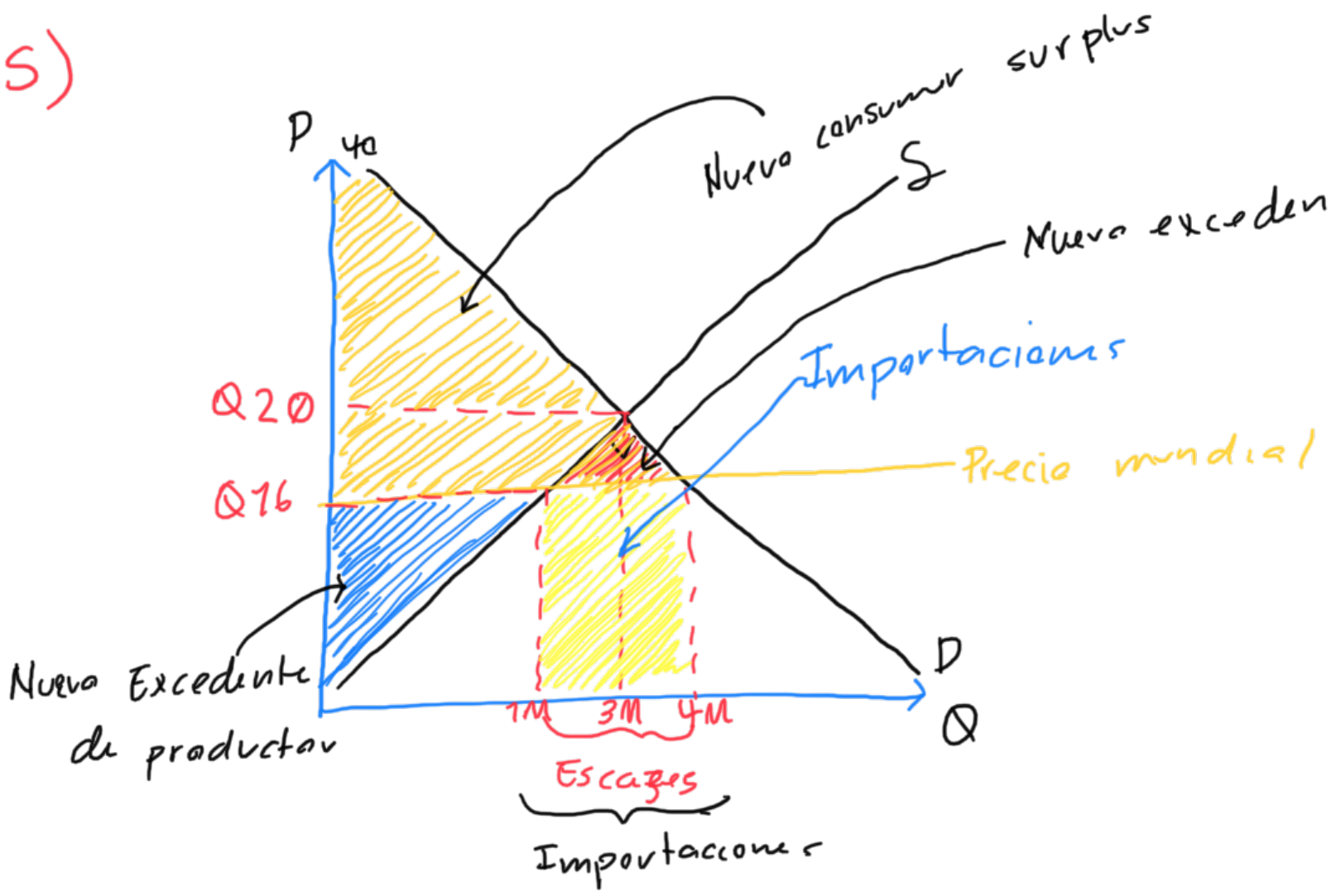
$$2z = 2x$$

$$z = x$$

Fin Resolución

Resolución de clase.

5)



$$IMP = (4M - 1M)(\$16)$$

$$= (3M)(16) = \$48\,M$$

$$EC_{sin\ comercio} = \frac{(40 - 20)(3)}{2} = 30M$$

$$EC_{comercio} = \frac{(40 - 16)(4)}{2} = 48\,M$$

$$EP_{sin\ comercio} = \$30\,M$$

$$EP_{comercio} = \$8\,M$$

Deducción: Los consumidores salen ganando más, los productores pierden.

Fin