LABORATORIO #6 - DAVID CORZO

1)

$$C(q) = 50 + 0.5q + 0.08q^2$$

$$p = 8.50$$

Precio = costo marginal

$$C'(q) = 0.5 + 0.16q = 8.50$$

$$0.16q = 8.50 - 0.5$$

$$q^* = \frac{8}{0.16} = \boxed{50}$$

Encontrar ingresos $q = 50$

Ingresos = Precio × cantidad

$$= 8.50 \times 50$$

$$= 425$$

encontrar costo en $q = 50$

$$C(50) = 50 + 0.5(50) + 0.08(50)^2$$

$$C(50) = 275$$

Encontrar $\pi = IT - CT$ $q = 50$

$$\pi = 425 - 275$$

$$= 150 \neq 0 \quad \boxed{\text{no es competitivo a largo plazo no está en equilibrio}}$$

Encontrar costo promedio

$$\frac{C(q)}{q} = \frac{50}{q} + 0.5 + 0.08q$$

$$\frac{C'(q)}{q} = -\frac{50}{q^2} + 0.08 = 0$$

$$\frac{-50}{q^2} = <0.08$$

$$50 = 0.08q$$

$$\frac{50}{0.08} = q^2$$

$$\sqrt{625} = q$$

$$\boxed{25 = q}$$

encontrar π cuando está en equilibrio: $q = 25$

$$C(25) = 50 + 0.5(25) + 0.08(25)^2$$

$$= 112.5$$

Precio = Costo marginal

Precio $= C'(25) = 0.5 + 0.16(25) = \boxed{4.5}$ nuevo precio

$$\text{Ingresos} = 4.5 * 25 = 112.5$$

$$\pi = 112.5 - 112.5 = 0 \checkmark$$

2) $C(q) = 2q^2 + 5q + 50$

$$P = 1025 - 2Q$$

\# Costo promedio marginal $= 0$

$$\frac{C(q)}{q} = 2q + 5 + \frac{50}{q}$$

$$\frac{C'(q)}{q} = 2 - \frac{50}{q^2} = 0$$

$$2 = \frac{50}{q^2}$$

$$2q^2 = 50$$

$$q = \sqrt{25}$$

$$\boxed{q^* = 5}$$

\# Costo total promedio $q=5$

$$\frac{C(s)}{5} = 2(s) + 5 + \frac{50}{5}$$

$$= 10 + 5 + 10$$

$$\frac{C(s)}{5} = 25$$

$$\boxed{P* = 25}$$

\# Encontrar Q

$$P = 1025 - 2Q$$

$$2Q = 1025 - P$$

$$Q = \frac{1}{2}(1025 - 25)$$

$$\boxed{Q = 500}$$

\# Encontrar núm de empresas:

\# Empresas $= \dfrac{Q}{q}$

$$= \frac{500}{5}$$

$$\boxed{\text{\# empresas} = \underline{100}}$$

\# π por empresa:

$$\pi = C(q) - P* \, q*$$

$$C(s) = 2(s)^2 + 5(s) + 50$$

$$= 125$$

$$P* q* = 125$$

$$\boxed{\pi = 0}$$

$q* = 5$	$p* = 25$	$Q = 500$	# empresas = 100	$\pi = 0$

b)
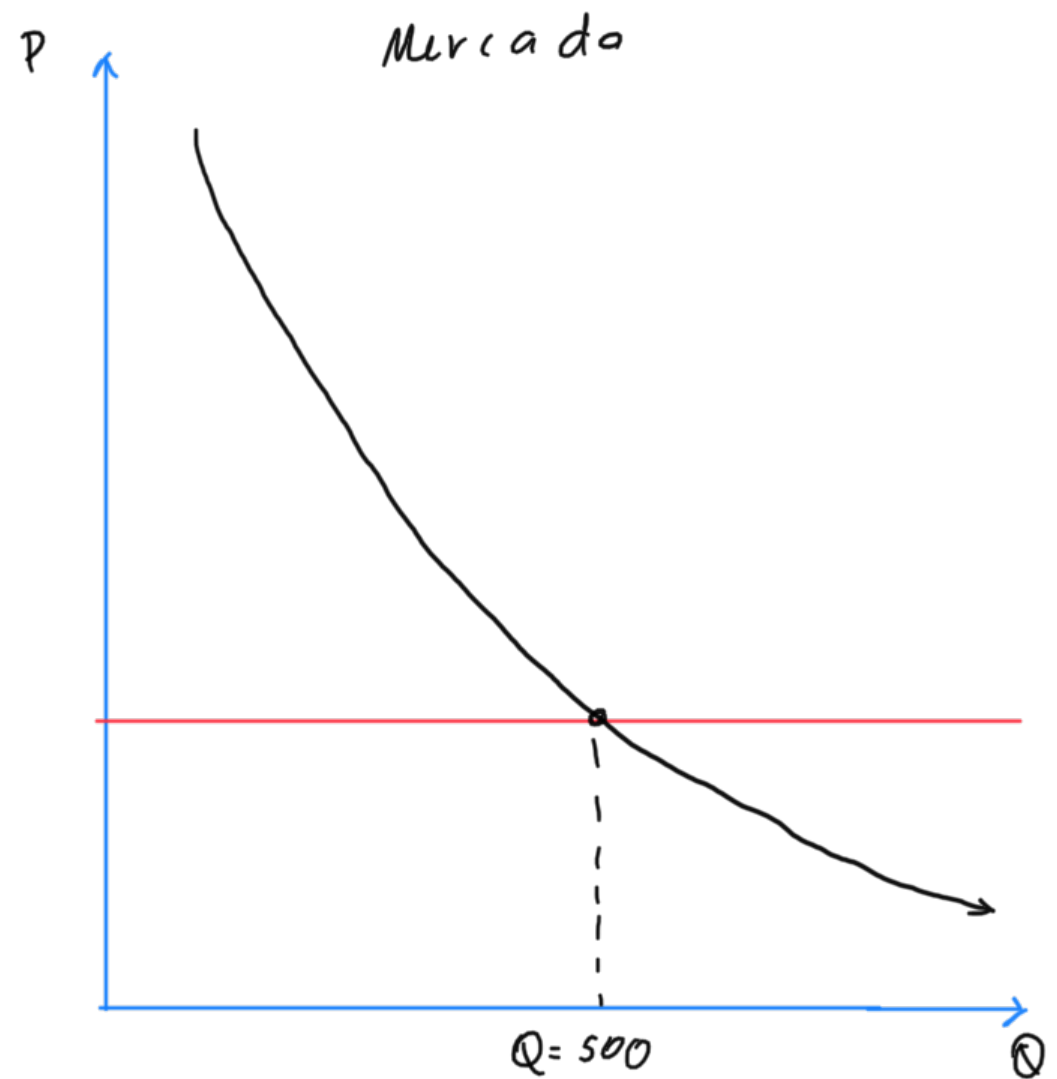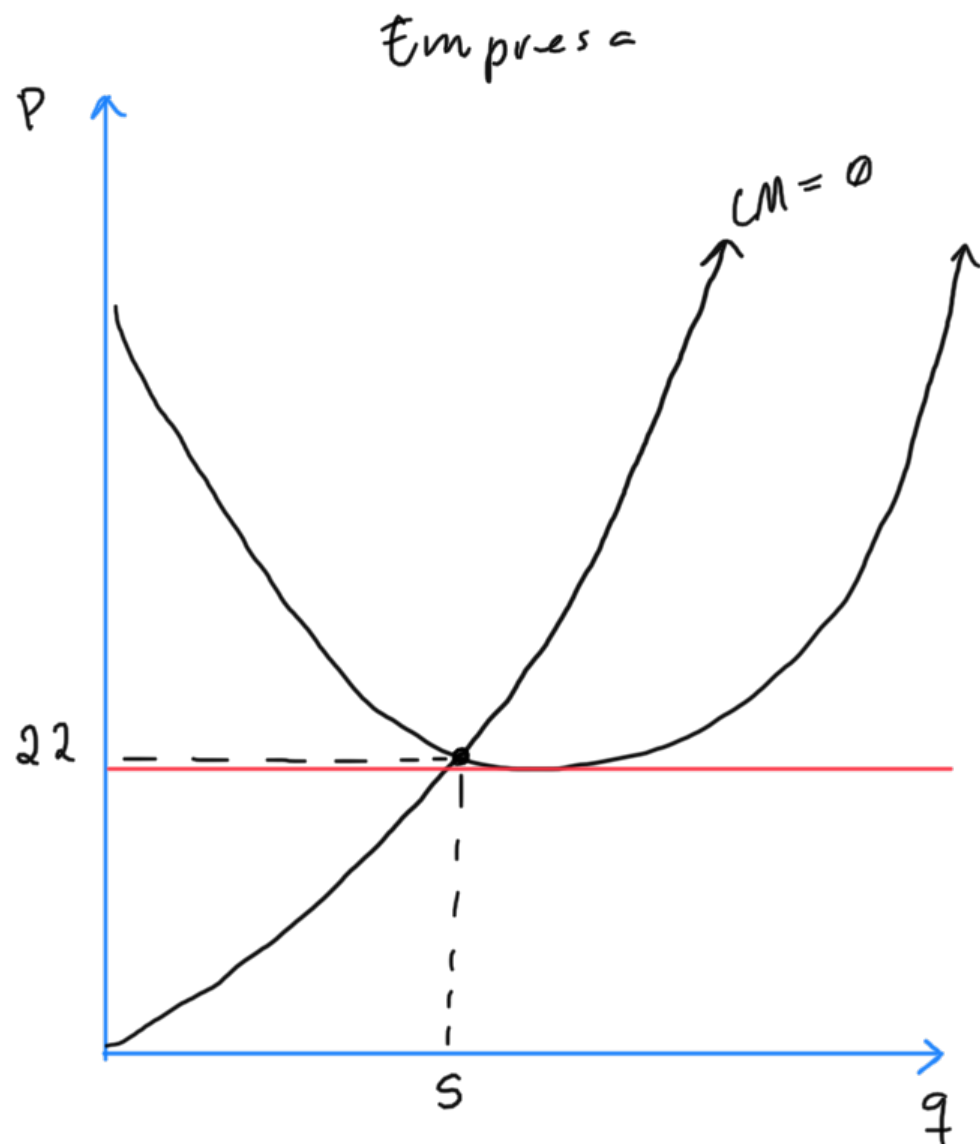
c)

Nuevos entrantes hacen que el precio se vuelva el costo marginal y eso ocasiona que al precio empezar a tocar el costo total promedio las ganancias son 0.

3)

$$C(Q) = 10 + 5Q \qquad P = 100 - Q$$

costo marginal = Ingreso Marginal

$$100 - 2Q = 5$$
$$-2Q = 5 - 100$$
$$Q = \frac{-95}{-2}$$
$$Q = 95$$

$$\frac{\alpha}{2}$$
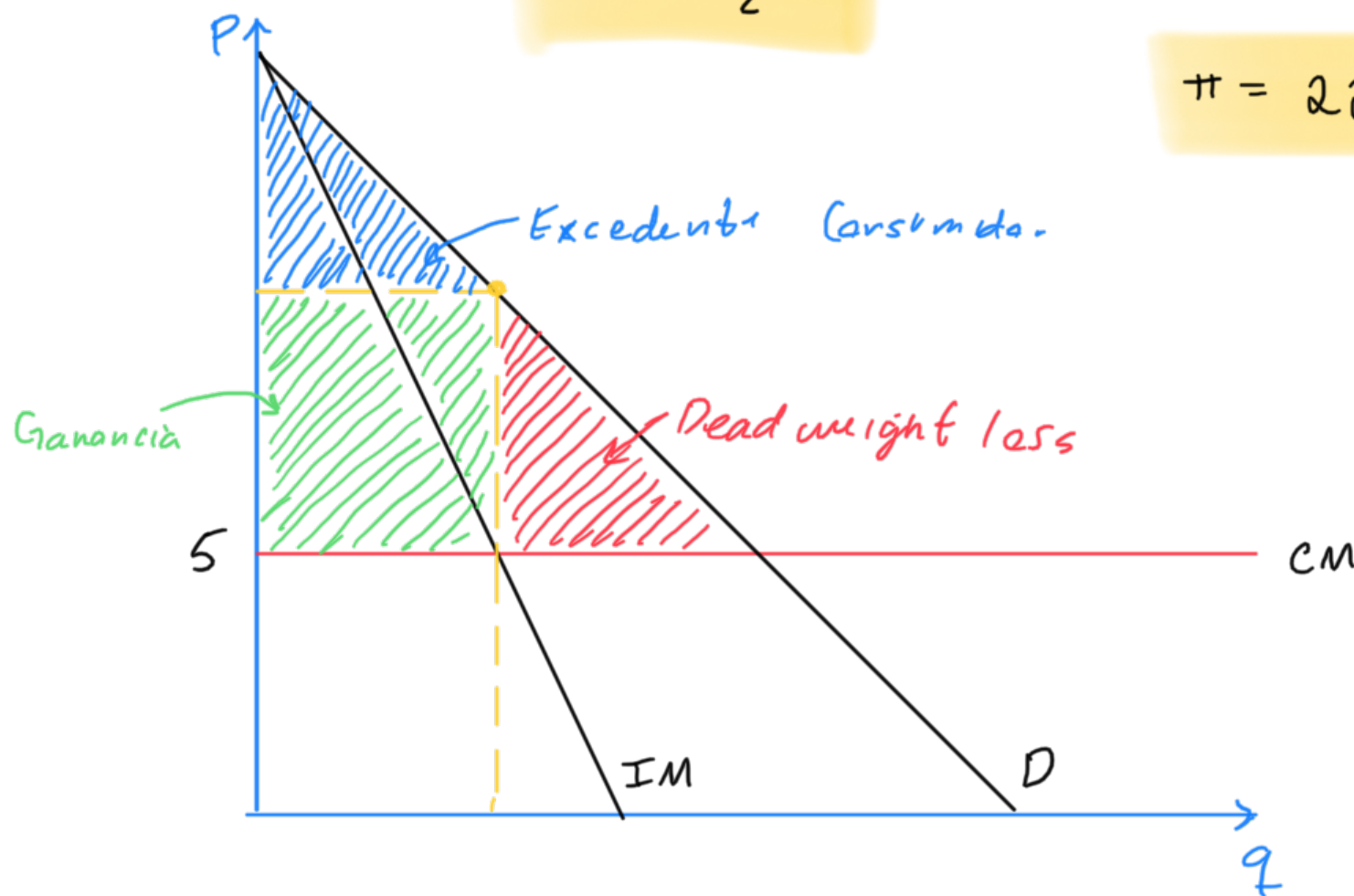
encontrar precio:

$$P = 100 - \frac{9S}{2}$$

$$P = \frac{10S}{2}$$

Encontrar π

$$\pi = QP - C(Q)$$

$$\pi = \frac{9S}{2} \cdot \frac{10S}{2} - 10 + S\left(\frac{9S}{2}\right)$$

$$\pi = 2246.25$$

Labels in graph: Excedente Consumidor, Ganancia, Dead weight less, CM, IM, D, 5, P, q

4)

Learner

$$\mathcal{L} = \frac{P - CM}{P} \qquad \begin{array}{l} P = 44.90 \\ CM = 0.81 \end{array}$$

$$\mathcal{L} = \frac{44.90 - 0.81}{44.90} = \frac{4409}{4490} \approx 0.98$$

$$E = \frac{1}{|\mathcal{L}|} \approx 1.02$$

El índice aumenta conforme más inelástica sea

5)

Pizzas

$$Q_D = 20,000 - 1,000\,P \qquad Q_S = 2,000P - 10,000$$

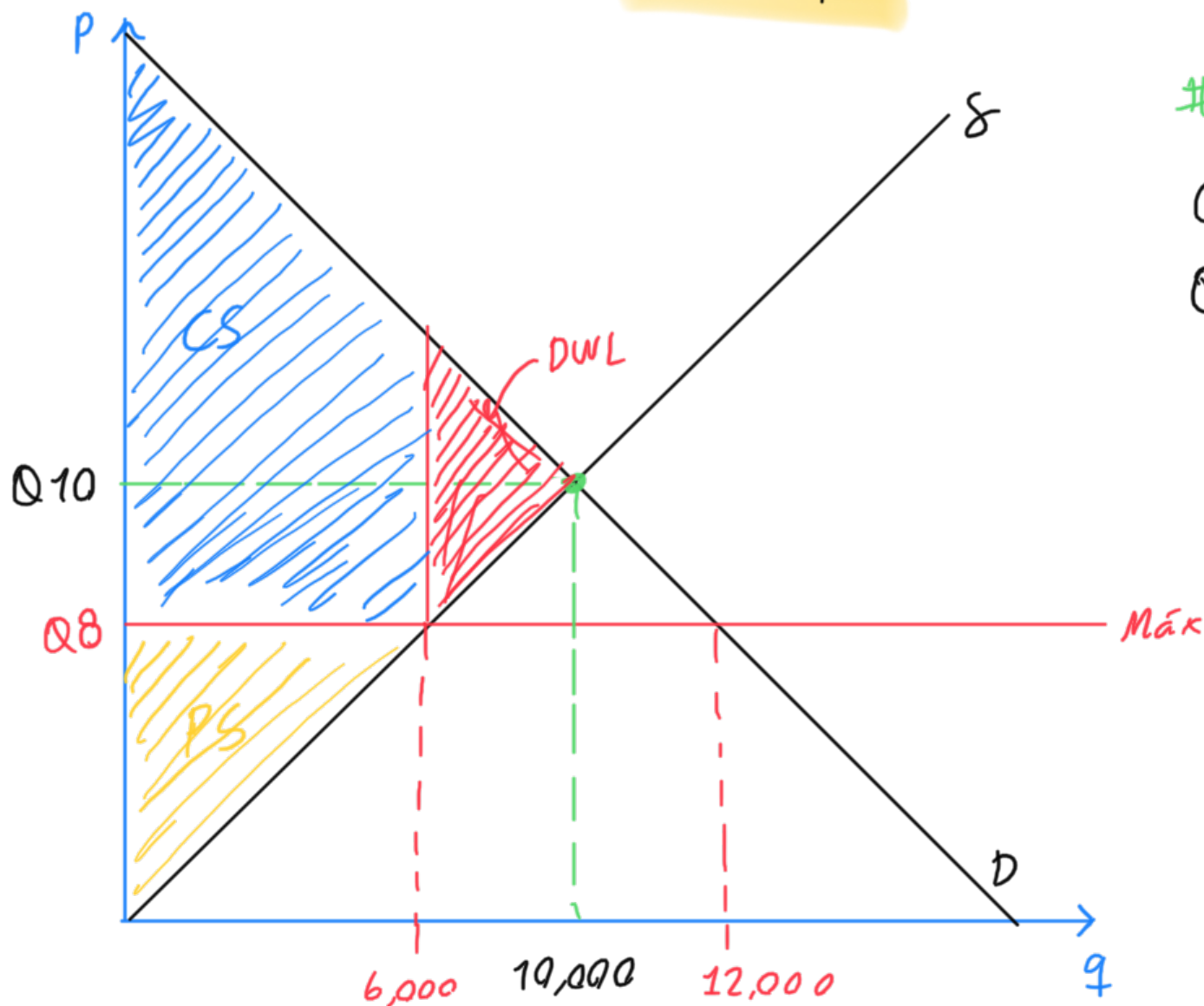### # Precio Máximo:

$$P_m = 8$$

Igualar demanda con oferta:

$$20,000 - 1,000...$$

$$1,000 P = 2,000 P - 10,000$$

$$20,000 + 10,000 = 2,000 P + 1000 P$$

$$30,000 = 3,000 P$$

$$10 = P$$

Con precio máximo

$$Q_S(8) = 6,000$$
$$Q_D(8) = 12,000$$

Excedente consumidor:

$$CS = \int_0^{6,000} \left[\frac{Q_D - 20,000}{-1000} - 8 \right] dQ$$

$$= \int_0^{6000} \left[-\frac{Q_D}{1000} + 20 - 8 \right] dQ = \int_0^{6000} -\frac{Q_D}{1000} + 12 \ dQ$$

$$= \left. -\frac{1}{2000} Q^2 + 12 Q \right]_0^{6000} = 54,000$$

$$PS = \int_0^{6000} \left[8 - \frac{Q_S - 2000}{-10,000} \right] dQ$$

$$= 48,600$$

$$DWL = \int_{6000}^{10000} \left[\frac{Q_D - 20,000}{-1000} - \frac{Q_S - 2,000}{-1000} \right] dQ$$

~ 6000   ~~~   -10,000   J

= 12,000