

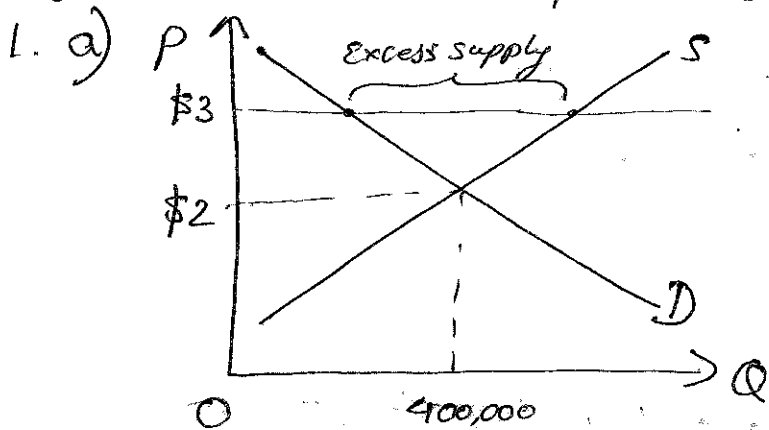
Problem Set #2

PPA 7.23

Prof. John McPeak

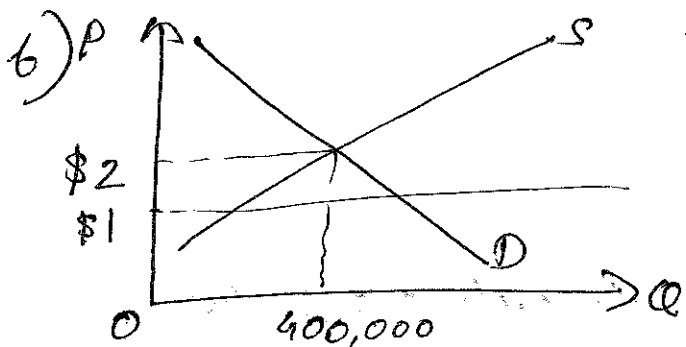
(1)

Key and main points of the answers



Price floor is effective
and there will be
an excess supply

Price floor < eq^m price (\$2)
not binding



c) Excess supply in (a)

2. $P = 2$ $\eta = -0.4$

a) $\% \Delta Q = -10\%$

$$\eta = \frac{\% \Delta Q}{\% \Delta P}$$

$$\Rightarrow -0.4 = \frac{-10\%}{\% \Delta P} \Rightarrow \% \Delta P = \frac{-0.1}{-0.4} = \frac{1}{4} \text{ or } 25\% \text{ increase}$$

∴ new price = 2.5

b) In the short run elasticity is -0.4

(2)

In the long run, people are able to adjust to price changes, so goods tend to become elastic

eg. say elasticity becomes -1

\Rightarrow the proportionate change in price will be equal to proportionate change in quantity

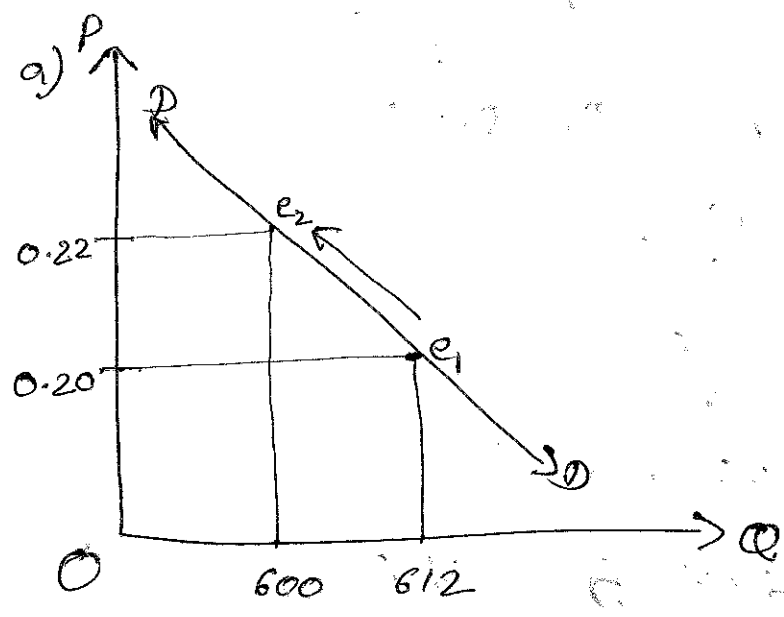
in short run,

10% reduction in quantity led to
25% increase in price

in the long run

10% reduction in quantity will change the
price only be 10%, to \$2.2

Ques 3



$Q_0 = 612 \quad P_0 = 0.2$
 $Q_1 = 600 \quad P_1 = 0.22$

b) There is an inverse relation between price and quantity, consistent with the law of demand.

c)
$$\eta = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$= \frac{600 - 612}{0.22 - 0.2} \times \frac{0.2}{612}$$

$$= -0.196$$

Ques 4 a) $\eta = -9.0$ Highly elastic

b)
$$\eta = \frac{\% \Delta Q}{\% \Delta P} \quad Q_0 = 100, \quad \% \Delta P = 10\% \quad \eta = -9$$

$$-9 = \frac{\% \Delta Q}{0.1} \Rightarrow \% \Delta Q = -0.9$$

$$\% \Delta Q = \frac{Q_1 - Q_0}{Q_0} \Rightarrow -0.9 = \frac{Q_1 - 100}{100} \quad Q_1 = 10 \text{ million}$$

 $\therefore 10\% \text{ increase in price, } 90\% \text{ fall in demand}$

$$(5) \quad P_d = 20 - \frac{Q_d}{5}, \quad P_s = \frac{Q_s}{5} - 5$$

a) at E , $P_d = P_s$, $Q_d = Q_s = Q$

$$20 - \frac{Q_d}{5} = \frac{Q_s}{5} - 5$$

$$25 = \frac{2Q}{5}$$

$$Q = \frac{125}{2} = 62.5$$

$$\therefore P = \frac{62.5}{5} - 5 = 7.5$$

b) if $T = 1$, $P_d = 1 + P_s$

in demand curve,
 $1 + P = 20 - \frac{Q}{5}$

$$\Rightarrow P = 19 - \frac{Q}{5}$$

supply curve

$$\frac{Q}{5} - 5 = P$$

\therefore in equilibrium

$$19 - \frac{Q}{5} = \frac{Q}{5} - 5$$

$$24 = \frac{2Q}{5}$$

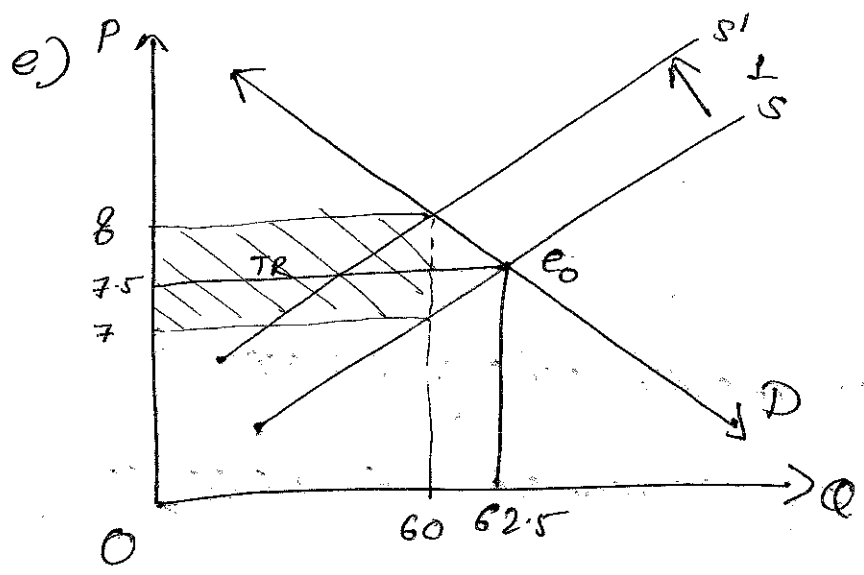
$$Q = 60, \quad P_s = \frac{60}{5} - 5 = 7$$

$$P_d = 1 + P_s = 8$$

\therefore new eqⁿ $Q = 60$, $P^d = 8$, $P^s = 7$

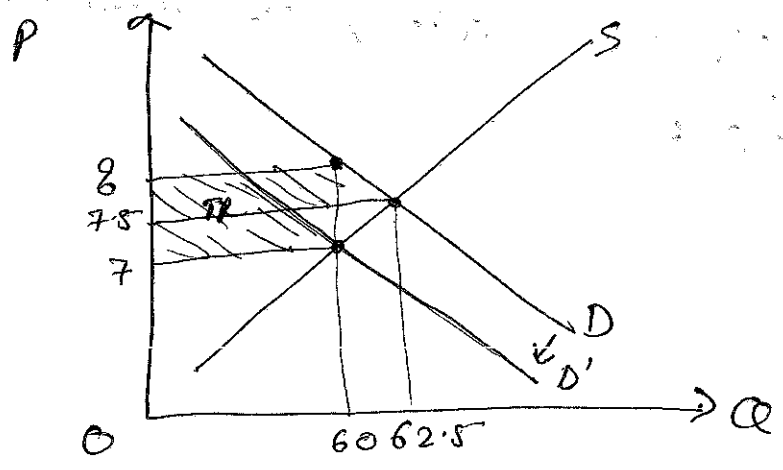
d) consumer tax incidence

$$\Delta C = \frac{8 - 7.5}{1} = 50\%$$



$$TR = 60 \times 1 = 60$$

or



$$f) \eta_d = \frac{\partial Q}{\partial P} \times \frac{P}{Q} = -5 \times \frac{7.5}{62.5} = -0.6$$

g) if demand was more elastic, the tax incidence on consumers would be less

Que 6 - a) If demand is inelastic, the proportionate change in quantity will be less than proportionate change in price.

b) It does not matter who you tax -- the producer or the consumer, the incidence of tax remains the same. It depends on relative elasticities of demand and supply curve.

For diagrams, refer to the two options drawn on page 5 for Que 5 (e)