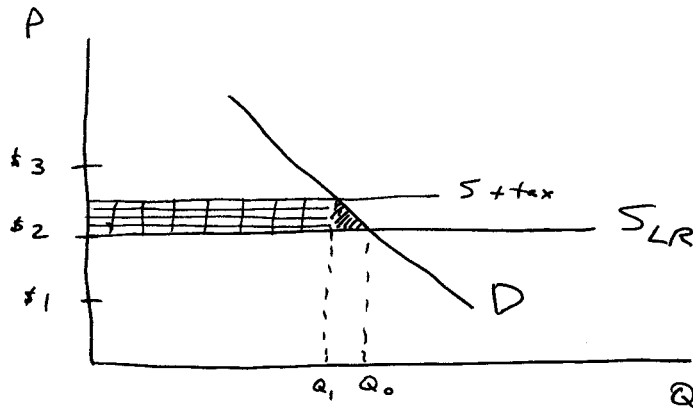


1.



Effect of the tax is to shift supply curve vertically by the amount of the tax. Price will rise from \$2 to \$2.50.



 = deadweight loss from the tax

The entire burden is borne by buyers, since long-run supply is perfectly elastic.

2.

$$(a) \quad P(Q) = 40 - Q$$

$$TR = P(Q) \cdot Q = 40Q - Q^2$$

$$MR = \frac{dTR}{dQ} = 40 - 2Q$$

$$TC = 100 + Q^2$$

$$MC = \frac{dTC}{dQ} = 2Q$$

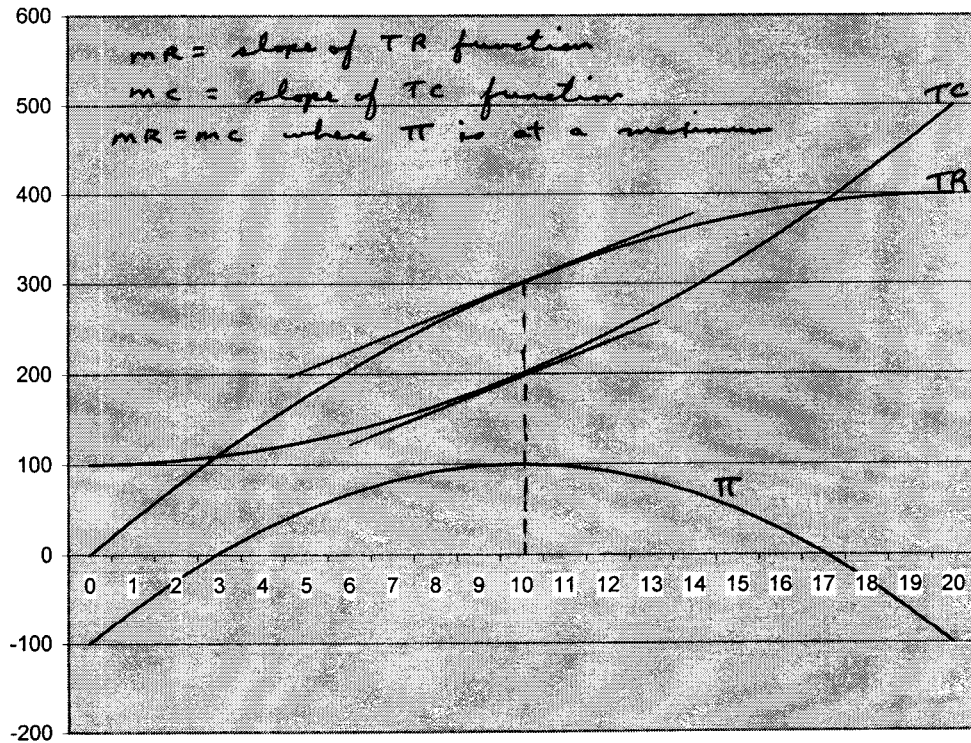
$$MR = MC \text{ for max } \Pi; \quad 40 - 2Q = 2Q, \text{ so } 40 = 4Q$$

$$Q^* = 10, \quad P^* = 40 - Q = \$30$$

$$\Pi = TR - TC = (40Q - Q^2) - (100 + Q^2) = \$100$$

Total Revenue, Total Cost, and Profit

2. (b)



3.

Inverse elasticity rule: $\frac{P - MC}{P} = \frac{1}{\epsilon}$

if $\epsilon = 2$ and $MC = \$2$:

$$\frac{P - 2}{P} = \frac{1}{2}, \quad P = \$4$$

so set the shelf price of a box of cereal equal to \$4 per box in the grocery store.

if $\epsilon = 5$, $\frac{P - 2}{P} = \frac{1}{5}$, $P = \$2.50$

so offer a coupon in the newspaper with a redemption value of \$1.50, so that coupon users pay an effective price of \$2.50.