

Homework Quiz: Tuesday, October 21

1. Chapter 7, Numerical Exercises N1, N2

2. Widgets are provided by a competitive constant-cost industry where each firm has fixed costs of \$30. The following chart shows the industry-wide demand curve and the marginal cost curve of a typical firm.

Industry Wide Demand		Firm's Marginal Cost Curve	
Price	Quantity	q	MC
\$5	1500	1	\$5
10	1200	2	10
15	900	3	15
20	600	4	20
25	300	5	25
30	200	6	30
35	140	7	35
40	50	8	40

a. Assume the industry is at its long-run competitive equilibrium. What is the price of a widget?

b. How many firms are in the industry?

Suppose there is a SALES tax of \$15 per widget.

c. In the short run, what is the new price of widgets?

d. In the short run, how many firms leave the industry?

e. In the long-run what is the new price of widgets?

f. In the long-run, how many firms leave the industry?

3. The marginal revenue curve of a competitive firm is

- U-shaped.
- a ray from the origin.
- a horizontal line at the market price.
- downward sloping.

4. A firm will shut down in the short run if its revenues fail to cover its

- fixed costs.
- variable costs.
- total costs.
- sunk costs.

5. A competitive firm will exit an industry in the long run when the market price falls below its

- marginal revenue.
- marginal cost.
- average cost.
- average variable cost.

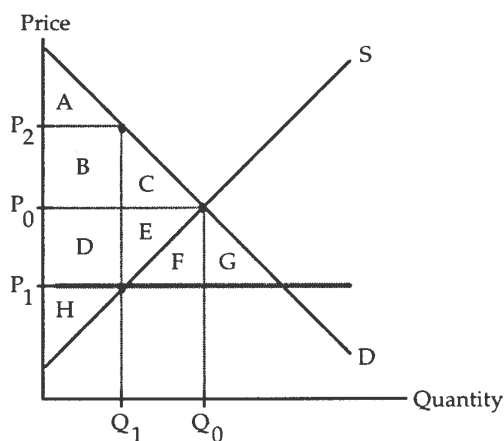
6. Suppose all firms in an industry are identical. In the long run, entry and exit guarantee that all firms will have zero
- marginal cost.
 - average cost.
 - economic profit.
 - accounting profit.
7. Suppose the demand curve for a good is given by the equation $Q = -4P + 2500$ ($P = -1/4 * Q + 125$) and the supply curve is given by $Q = 2P - 100$ ($P = 1/2Q + 50$). The equilibrium price and quantity is \$100 and 100 units.
- Calculate consumer surplus at this equilibrium price and quantity.
 - Calculate producer surplus at this equilibrium price and quantity.
 - Calculate total social gain at this equilibrium price and quantity.

Now assume the government imposes a sales tax of \$6 per unit. With this tax, the new market price is \$96 and the new quantity is 92 units.

- Calculate the post-tax consumer surplus at this new equilibrium price and quantity.
- Calculate the post-tax producer surplus at this new equilibrium price and quantity.
- Calculate the tax revenue collected from the government.
- Calculate the post-tax total social gain assuming the tax revenue is re-distributed to support public education.
- Calculate deadweight loss.
- Illustrate the effect of this tax graphically. Label the following areas as follows:
 - A- consumer surplus
 - B- producer surplus
 - C- tax revenue
 - D- deadweight loss

Price Ceiling

The following questions refer to the accompanying diagram which shows the effects of a price ceiling. The initial price and quantity are P_0 and Q_0 , respectively, and the price ceiling is imposed at the price P_1 . Assume that none of the potential deadweight loss can be avoided.



8. Refer to Price Ceiling. Area B + D represents
- the deadweight loss due to the price ceiling.
 - the fall in consumers' surplus caused by the imposition of the price ceiling.
 - the value of the time and resources spent by consumers to acquire the limited supply.
 - the post-ceiling profits earned by the producers of the good.

9. Refer to Price Ceiling. After the price ceiling is imposed, consumers' surplus is equal to
- area A.
 - area A + B.
 - area A + B + D.
 - area A + B + C + D + E + F + G.
10. Refer to Price Ceiling. The price ceiling creates a deadweight loss equal to
- area A + H.
 - area B + C + D + E.
 - area B + D.
 - area C + E.
11. Relative to before the price ceiling, how much surplus do producers lose because of the ceiling?
- Area D+E+H
 - Area D+E
 - Area D+E+F
 - Area H.
12. Refer to an Edgeworth Box Economy. The initial holdings of an individual in an Edgeworth box is referred to as
- the contract point.
 - the endowment point.
 - the Pareto preferred point.
 - the competitive equilibrium point.
13. Refer to an Edgeworth Box Economy. In an Edgeworth box, points within the region of mutual advantage represent allocations that
- can be achieved by a competitive market.
 - both consumers prefer to the initial endowment.
 - exhaust the potential gains from trade.
 - are Pareto optimal.
14. Refer to an Edgeworth Box Economy. In an Edgeworth box, a point where two indifference curves are tangent represents
- the initial endowment point.
 - an allocation that both consumers prefer to the initial endowment.
 - a competitive equilibrium.
 - a Pareto-optimal allocation of goods.
15. Refer to an Edgeworth Box Economy. Analysis of an Edgeworth box economy shows that a competitive equilibrium
- must be Pareto optimal.
 - can be located anywhere along the contract curve.
 - may lie anywhere within the region of mutual advantage.
 - must lie to the southeast of the endowment point.