Economics 101   Name _____
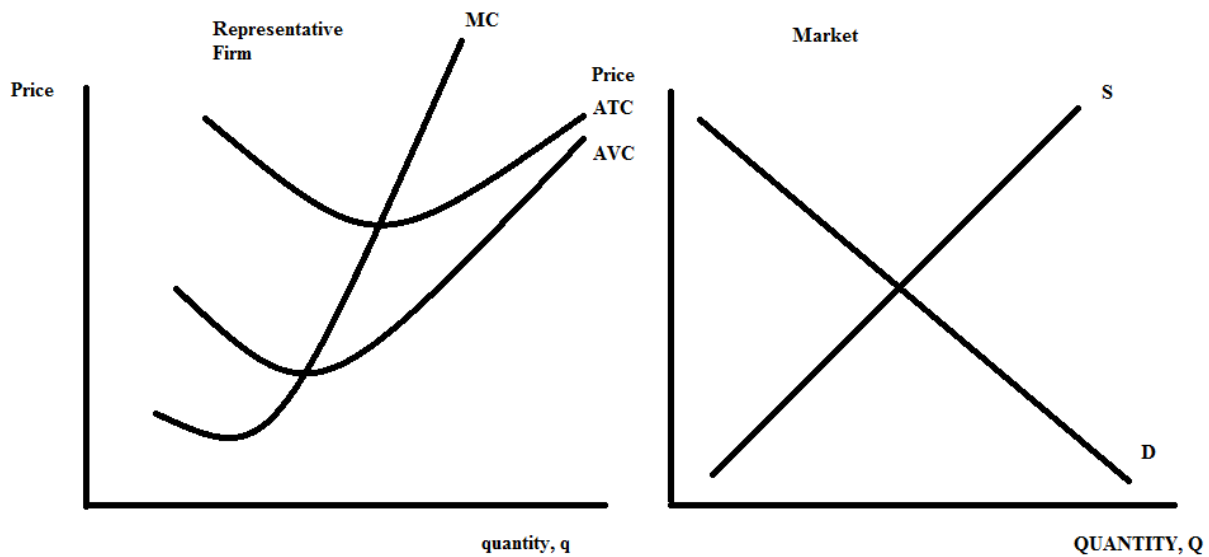Summer 2016
Quiz #4 with answers

This is a ten point quiz. Answer all questions neatly and legibly. Show your work.

1. The following two graphs represent a perfectly competitive market.

a. (1 point) In the above graph label the initial equilibrium price, P1, and equilibrium quantity, Q1, in the market.

Answer:
see below

b. (1 point) In the above graph draw and label the firm's initial marginal revenue curve, MR1. Identify the firm's short-run profit-maximizing quantity, q1.

Answer:

Representative Firm — Price, P1, q1, quantity, q; MC, ATC, AVC, MR1

Market — Price, P1, Q1, QUANTITY, Q; S, D
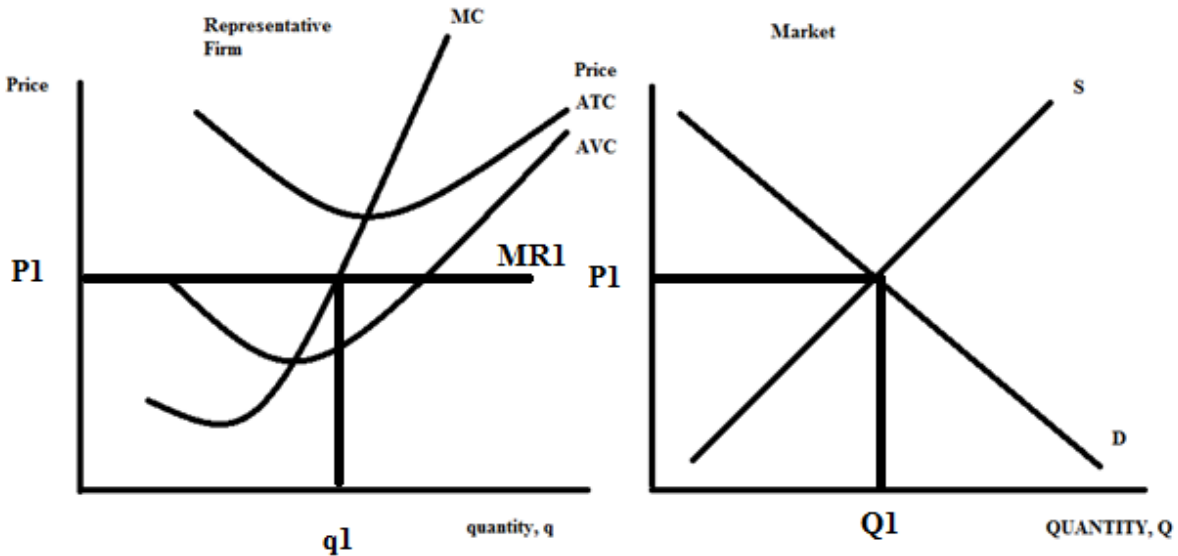
c. (1 point) In the short-run, this firm makes _____ economic profits.

Answer:
negative

d. (1 point) In the long run, there will be _____ of firms.

Answer:
exit

e. (1.5 points) Relative to the initial short-run equilibrium, in the long run:
    i. The profit maximizing quantity for the firm will _____.
    ii. The price in the market will _____.
    iii. The quantity in the market will _____.

Answer:
    i. The profit maximizing quantity for the firm will ___increase_____.
    ii. The price in the market will _____increase_____.
    iii. The quantity in the market will _____decrease_____.

2. Consider a monopoly that can be described by the following demand curve:
    $P = 200 - 2Q$
You are also told that the equations for MC and TC for this monopoly are given as:
    $MC = $ marginal cost $= 20 + 2Q$
    $TC = $ total cost $= 20Q + Q^2 + 100$

a. (1 point) What is the firm's marginal revenue (MR) equation given the above information?

MR = _____

MR = 200 – 4Q
Recall that the MR curve has the same y-intercept as the demand curve when demand is linear and twice the slope of the demand curve.

b. (1 point) Identify the profit maximizing quantity and price for this monopolist if it acts as a single price monopolist? Show your work for full credit.

Profit-maximizing quantity = _____

Profit-maximizing price = _____

Answer:
The profit maximizing single price monopolist equates the MR curve and the MC curve to find its profit maximizing quantity:
MR = MC
200 – 4Q = 20 + 2Q
180 = 6Q
Q = 30 units
To find the profit maximizing price, substitute this quantity into the demand curve:
P = 200 – 2Q = 200 – 2(30) = $140

c. (1 point) Calculate the value of the monopoly's profit. Show how you found your answer.

Monopoly's profit = _____

Answer:
We need to calculate total revenue (TR) and total cost (TC) given the price and quantity we found in (b).
TR = P*Q = ($140 per unit)(30 units) = $4200
TC = 20(30) + (30)(30) + 100 = 600 + 900 + 100 = $1600
Profits = TR – TC = $4200 - $1600 = $2600

d. (1.5 points) Calculate the value of consumer surplus (CS), producer surplus (PS), and deadweight loss (DWL) for this single price monopolist. Show your work.
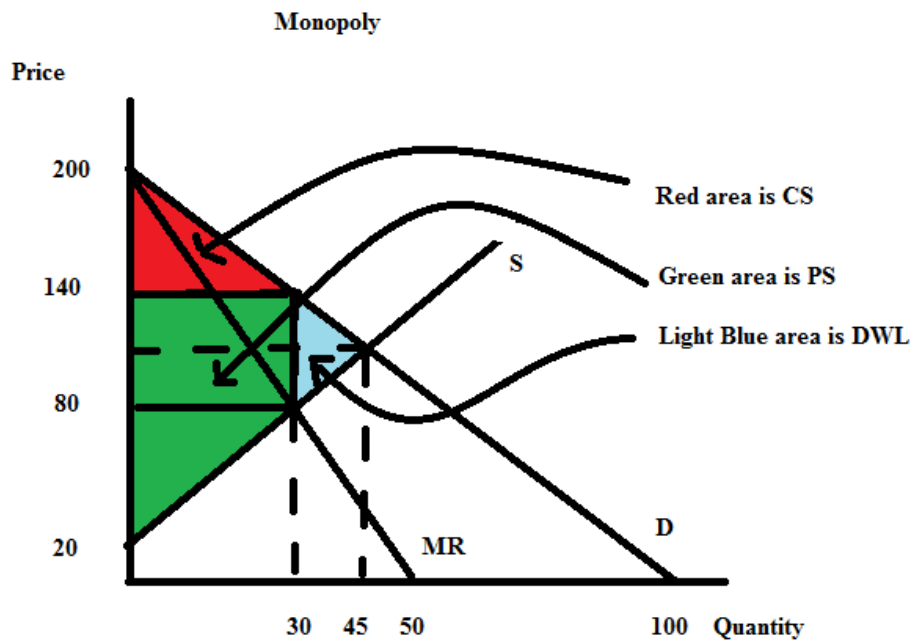
CS = _____

PS = _____

DWL = _____

Answer:
A graph will make these areas easier to see.

Monopoly

Price

CS = (1/2)(200 − 140)(30) = (1/2)(60)(30) = $900

PS = (1/2)(80 − 20)(30) + (60)(30) = (1/2)(60)(30) + 1800 = 900 + 1800 = $2700

DWL = (1/2)(140 − 80)(45 − 30) = (1/2)(60)(15) = (30)(15) = $450