EXHIBIT 1
RESOURCES NEEDED AND SCHEDULE FOR ECONOMICS COURSE

Resources needed:

1. The student textbook is PHSC cata #1070.
2. The student workbook is PHSC cata #1071.
3. Appendix A practice problems at http://www.howardcc.edu/social_science/microbk.htm (extra credit assignments)**
4. Appendix A practice problems at http://www.howardcc.edu/social_science/macrobk.htm (extra credit assignments)**
5. AP course and exam info for microeconomics at http://www.collegeboard.com/student/testing/ap/sub_miceco.html?micro
6. AP course and exam info for macroeconomics at http://www.collegeboard.com/student/testing/ap/sub_maceco.html?macro
7. Princeton Review's *Cracking the AP Economics Macro and Micro Exams* or Barron's *How to Prepare for the AP Microeconomics/Macroeconomics Advanced Placement Examinations*

Schedule:

Class #	Textbook Chapters to Be Discussed in this Class	Extra Credit Units in Resource 4 Above	Extra Credit Units in Resource 3 Above	Textbook Chapter Assignments Due by the Time of this Class
1	Introduction, 1, 2			
2	3, 4, 5			1, 2
3	6, 7	7, 10		3, 4, 5
4	8, 9	2	3	
5	10, 11, 12		4	6, 7
6	12		5, 6, 7, 8	8, 9
7	12			10, 11
8	13, 14			12
9	15, 16	3, 4		13, 14
10	17, 18		9	
11	19, 20	6, 8		15, 16
12	20	5	10, 11	17, 18
13	A/P Info*			19
14	A/P Info*			20

* Not in the textbook, but in Resources 5,6 and 7 above.
** See temporary alternative urls at Exhibit 40.

EXHIBIT 2
EXTRA CREDIT WORK FOR CHAPTERS 6 AND 7

Extra Credit Work for Chapter 6:

Appendix A Practice Problems for Unit 7 at web-page http://www.howardcc.edu/social_science/macrobk.htm . It consists of 15 true-false questions.

Extra Credit Work for Chapter 7:

Appendix A Practice Problems for Unit 10 at web-page http://www.howardcc.edu/social_science/macrobk.htm . It consists of 18 true-false questions.

EXHIBIT 3
EXTRA CREDIT WORK FOR CHAPTERS 8 AND 9

Appendix A Practice Problems for Unit 2 at web-page
http://www.howardcc.edu/social_science/macrobk.htm .

Appendix A Practice Problems for Unit 3 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

EXHIBIT 4
EXTRA CREDIT WORK FOR CHAPTERS 10 AND 11

Appendix A Practice Problems for Unit 4 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

EXHIBIT 5
EXTRA CREDIT WORK FOR CHAPTER 12

Appendix A Practice Problems for Unit 5 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

Appendix A Practice Problems for Unit 6 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

Appendix A Practice Problems for Unit 7 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

Appendix A Practice Problems for Unit 8 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

EXHIBIT 6
EXTRA CREDIT WORK FOR CHAPTERS 15 AND 16

Appendix A Practice Problems for Unit 3 at web-page
http://www.howardcc.edu/social_science/macrobk.htm .

Appendix A Practice Problems for Unit 4 at web-page
http://www.howardcc.edu/social_science/macrobk.htm .

EXHIBIT 7
EXTRA CREDIT WORK FOR CHAPTERS 17 AND 18

Appendix A Practice Problems for Unit 9 at web-page
http://www.howardcc.edu/social_science/microbk.htm .

EXHIBIT 8
EXTRA CREDIT WORK FOR CHAPTER 19

Appendix A Practice Problems for Unit 6 at web-page
http://www.howardcc.edu/social_science/macrobk.htm .

Appendix A Practice Problems for Unit 8 at web-page
http://www.howardcc.edu/social_science/macrobk.htm .

EXHIBIT 9
EXTRA CREDIT WORK FOR CHAPTER 20

Appendix A Practice Problems for Unit 5 at web-page http://www.howardcc.edu/social_science/macrobk.htm . It consists of 15 true-false questions.

Appendix A Practice Problems for Unit 10 at web-page http://www.howardcc.edu/social_science/microbk.htm .

Appendix A Practice Problems for Unit 11 at web-page http://www.howardcc.edu/social_science/microbk.htm .

EXHIBIT 10
QUOTES RELATING TO MONEY

- Article I, section 10 of the US Constitution says that “No state shall…make any thing but gold and silver coin a tender in payment of debts”.

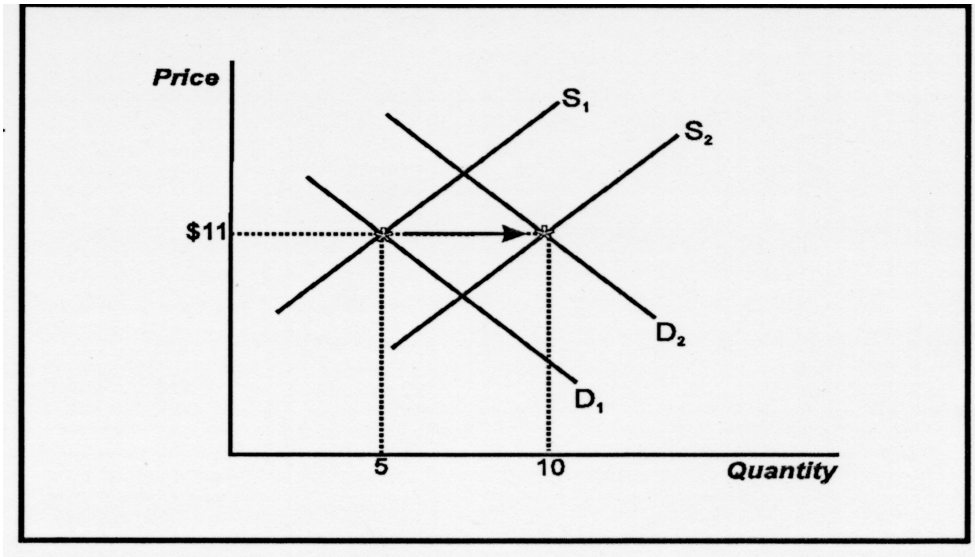
- Article I, section 8 says that “to coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures.”

- Roger Sherman, author of the gold & silver coin provision of the US Constitution, wrote a scathing condemnation of paper money entitled, *"A CAVEAT AGAINST INJUSTICE"* in which he stated: "If what is used as a Medium of Exchange is fluctuating in its Value, it is no better than unjust Weights & Measures, both which are condemned by the LAWS of GOD & MAN."

- Coin - Title 12, U.S. Code, Section 152 : "The terms *'lawful money'* or *'lawful money of the U.S.'* shall be construed to mean GOLD or SILVER COIN of the U.S."
- Coinage Act of 1792 : Congress fixed the dollar as a specific weight of silver and gold in the form of coin.

EXHIBIT 11
GRAPHS OF DIFFERENT SCENARIOS
(see http://www.howardcc.edu/social_science/macrobk.htm)

Scenario 1:



Scenario 2:

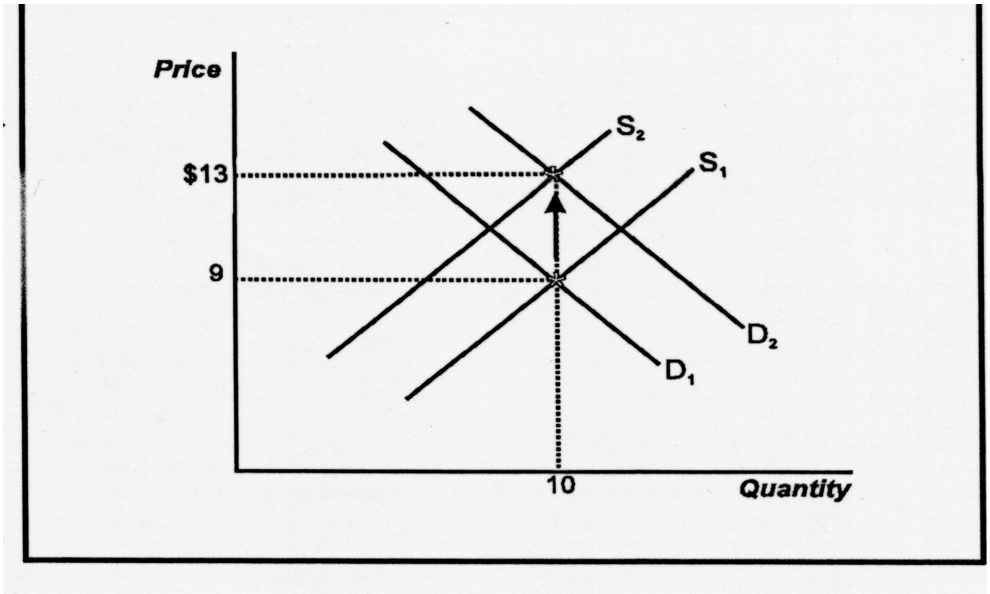


EXHIBIT 12
GRAPH OF DIMINISHING MARGINAL PRODUCT

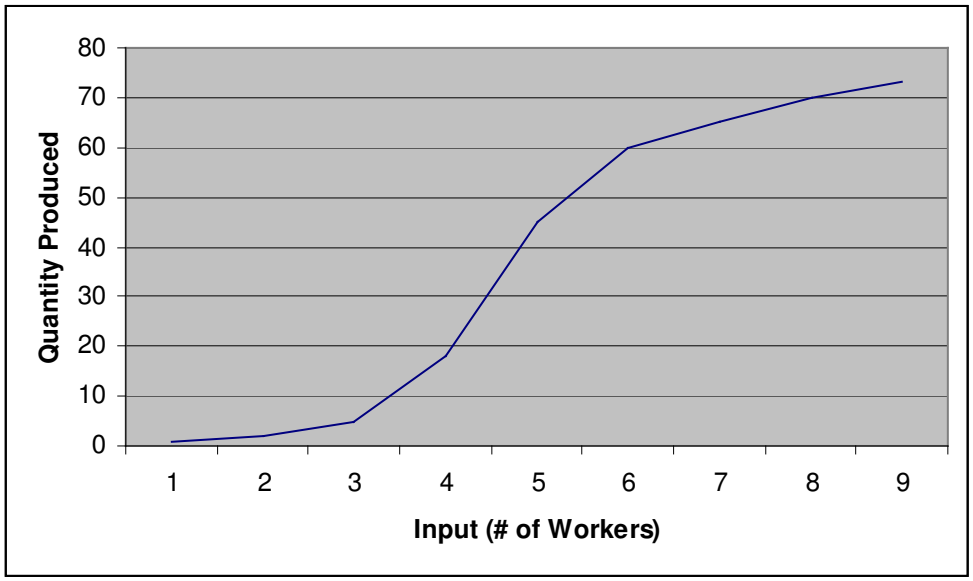


EXHIBIT 13
TABLES OF AVERAGE PRODUCT AND MARGINAL PRODUCT FOR THE SAMPLE FIRM

Table #1:

# of Workers	Total Production	Average Product	Marginal Product
0	0	-	-
1	3	3	3
2	7	3.5	4
3	15	5	8
4	19	4.75	4
5	22	4.40	3
6	23	3.83	1

Table #2:

# of Workers	Total Production	Average Product	Marginal Product
0	0	0	-
2	7	3.5	3.5
4	19	4.75	6
6	23	3.83	2

EXHIBIT 14
COST FUNCTIONS

Total Variable Cost (TVC) – The cost of all variable resources
Examples: Cost of labor, materials, office supplies

Total Fixed Cost (TFC) – The cost of all fixed inputs
Examples: Cost of the building, large pieces of machinery, certain taxes

Total Cost (TC) – This the sum of TVC and TFC.

Average Variable Cost (AVC) – This is variable cost per product.

Average Fixed Cost (AFC) – This is fixed cost per product.

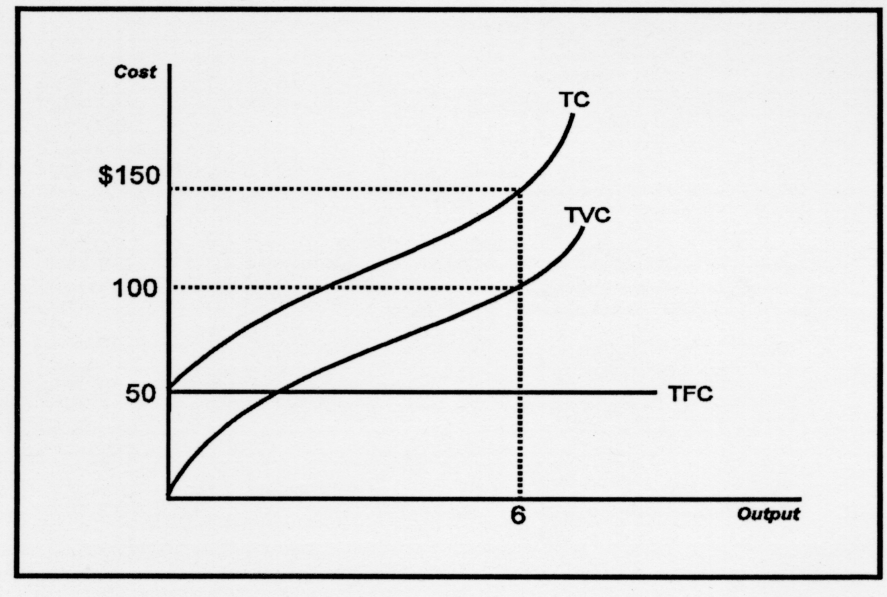
Average Total Cost (ATC) – This is total cost per product.

Marginal Cost (MC) – This is the cost of producing an additional unit of the product.

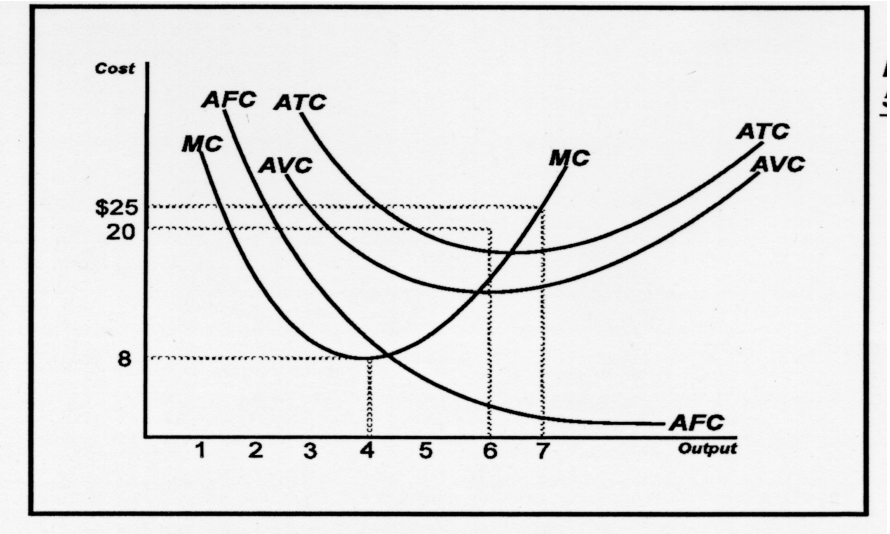
ATC = TC/Q
AFC = TFC/Q
AVC = TVC/Q
MC = change in TC/change in Q
where Q = quantity of output

EXHIBIT 15
COST CURVES OF A TYPICAL FIRM

Graph 1:

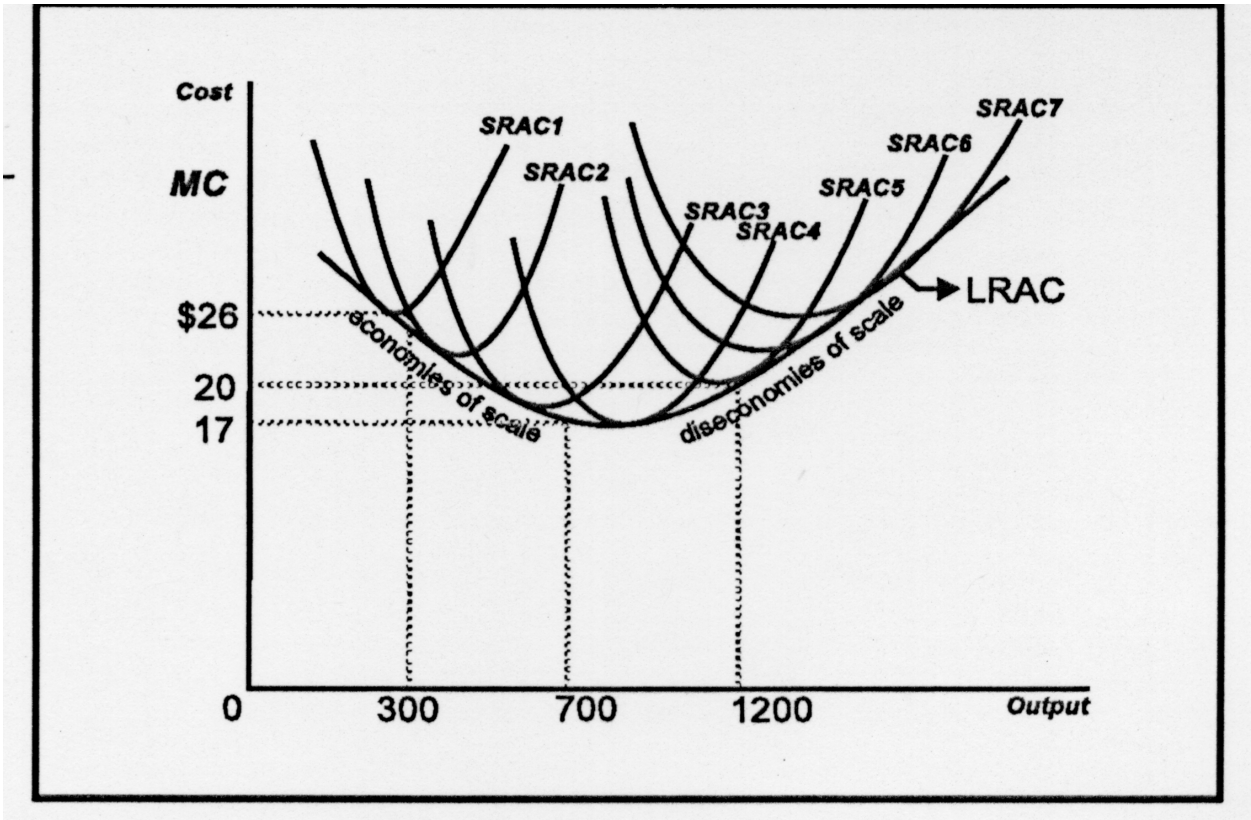


Graph 2:



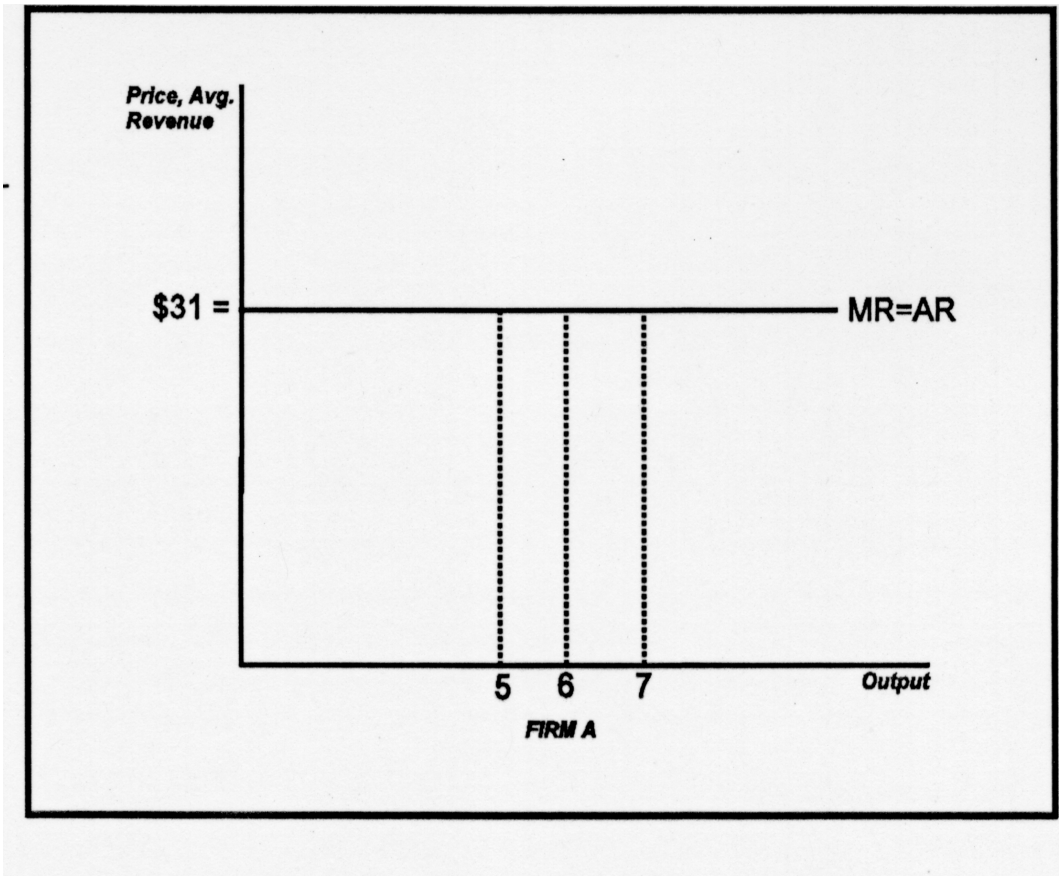
The curves above show typical shapes of a firm's total cost, total variable cost and total fixed cost curves. Total fixed cost is constant at $50 for all levels of production. Total cost and total variable cost increase with higher levels of output. Note that total fixed cost and total variable cost always add to total cost.

EXHIBIT 16
LONG RUN AVERAGE COST CURVE



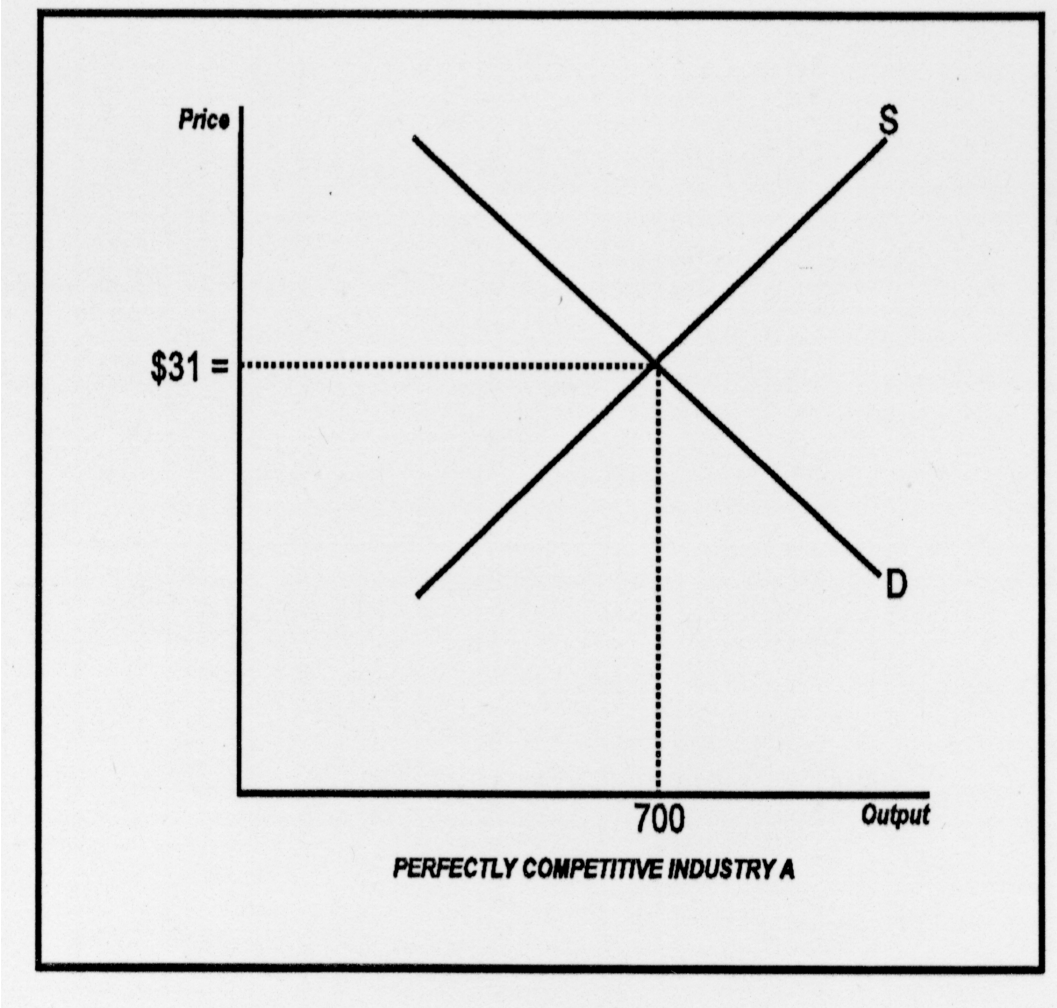
➢ A firm's long run average cost curve is the "envelope" of many short run average cost curves. All inputs are variable and the firm has the choice of building or changing to a variety of plant or facility sizes. A small operation (SRAC1) which wants to produce 300 units will have average costs of $26. A larger one, which produces 700 units, can produce each product for $17 (economies of scale). When the firm gets too large (SRAC6), average costs rise to $20 (diseconomies of scale).

EXHIBIT 17
THE DEMAND CURVE FOR A PURELY COMPETITIVE FIRM



➢ The marginal and average revenue (=demand) curves for a typical firm in pure competition are identical: a horizontal line originating from the equilibrium price of the product.

EXHIBIT 18
DEMAND CURVE FOR THE INDUSTRY AS A WHOLE IN A PURELY COMETITIVE INDUSTRY

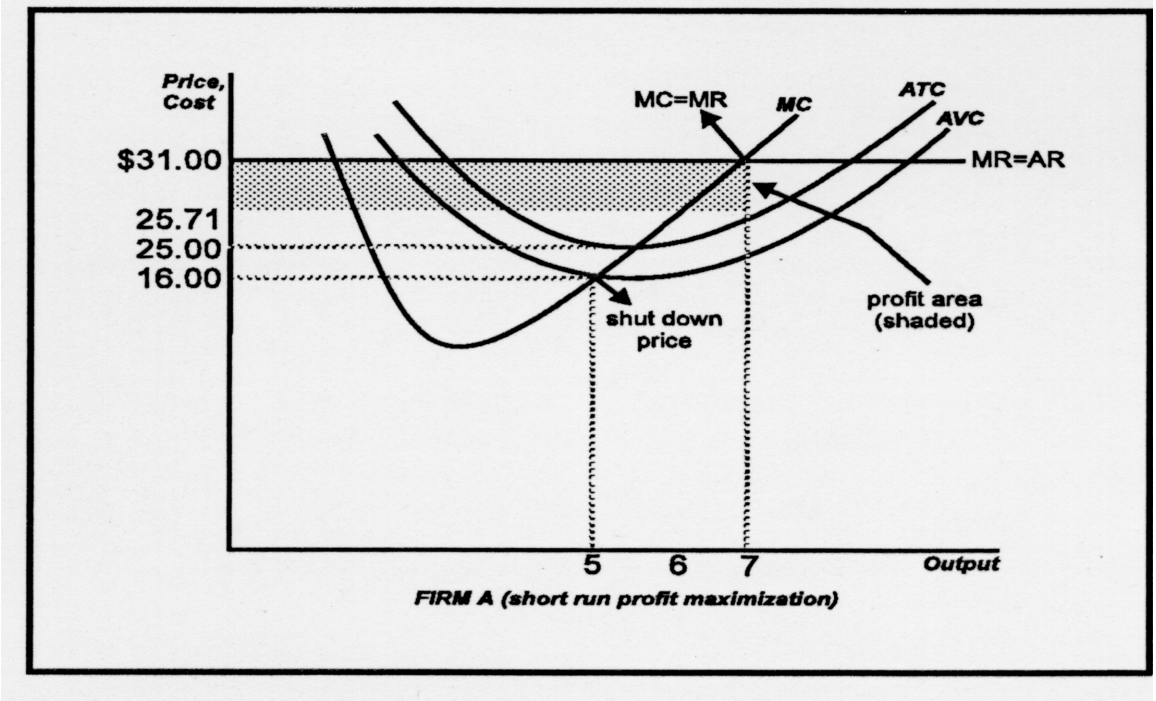


➢ The demand curve for all firms combined (i.e. the industry) is still downward sloping, as illustrated above.

EXHIBIT 19
COST TABLE

Output	Total Fixed Cost	Total Variable Cost	Total Cost	Marginal Cost	Average Variable Cost	Average Total Cost
0	$50	0	$50	-	-	-
1	50	30	80	$30	$30	$80
2	50	50	100	20	25	50
3	50	60	110	10	20	36.67
4	50	68	118	8	17	29.50
5	50	80	130	12	16	26
6	50	100	150	20	16.67	25
7	50	130	180	30	18.57	25.71
8	50	165	215	35	20.63	26.88
9	50	220	270	55	24.44	30

EXHIBIT 20
GRAPH SHOWING SHORT RUN PROFIT MAXIMIZATION OUTPUT



In the above example the firm maximizes its profits when it produces 7 units because it is where MC equals MR; ATC at that output is $25.71. The profit area is the rectangle from the price ($31.00) down to the ATC ($25.71) and across to the vertical axis.

Short run industry supply and demand curves when market price allows above normal economic profits:

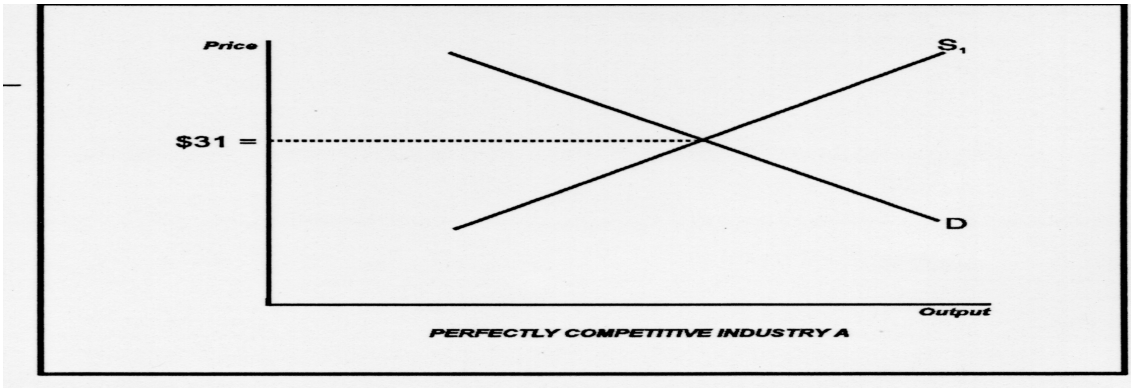
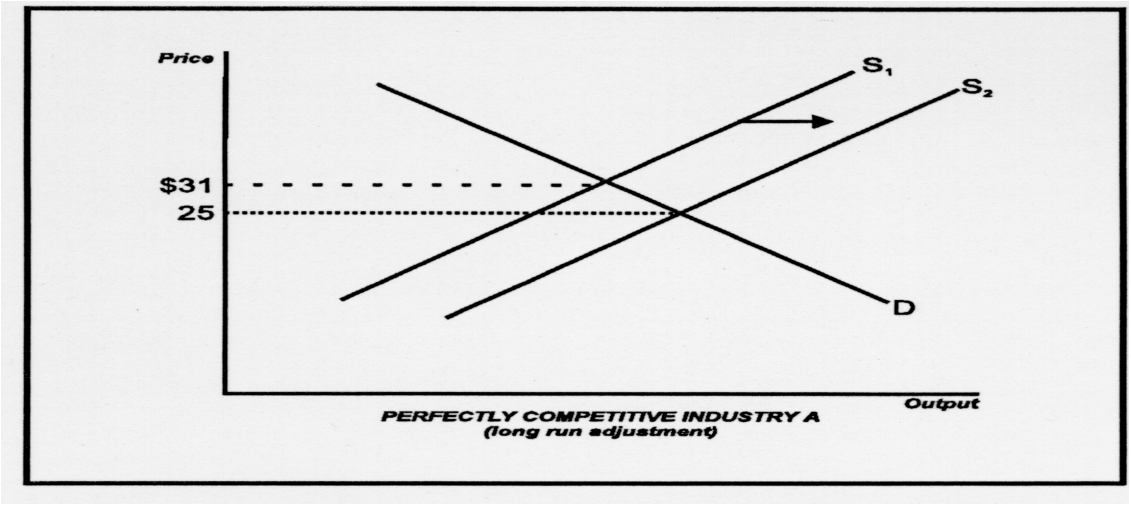


EXHIBIT 21
GRAPH SHOWING LONG RUN PROFIT MAXIMIZATION OUTPUT

Long run situation when industry supply increases and market equilibrium price adjusts to do away with above normal economic profits:



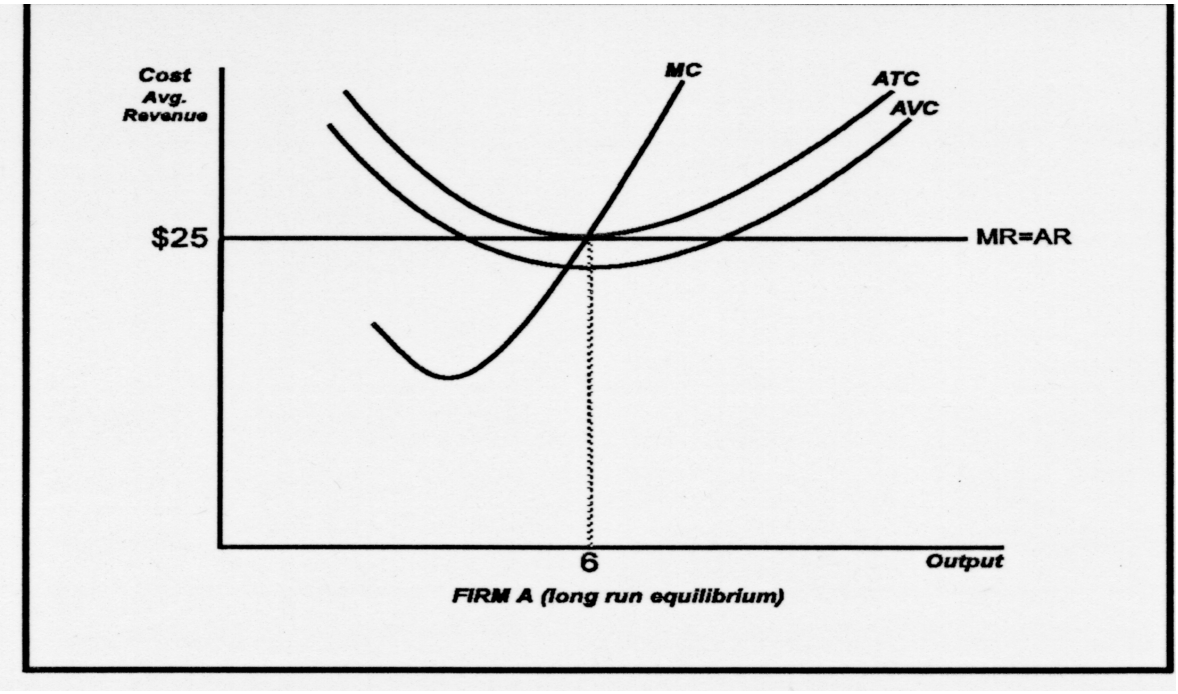


EXHIBIT 22
A MONOPOLIST'S DEMAND CURVE

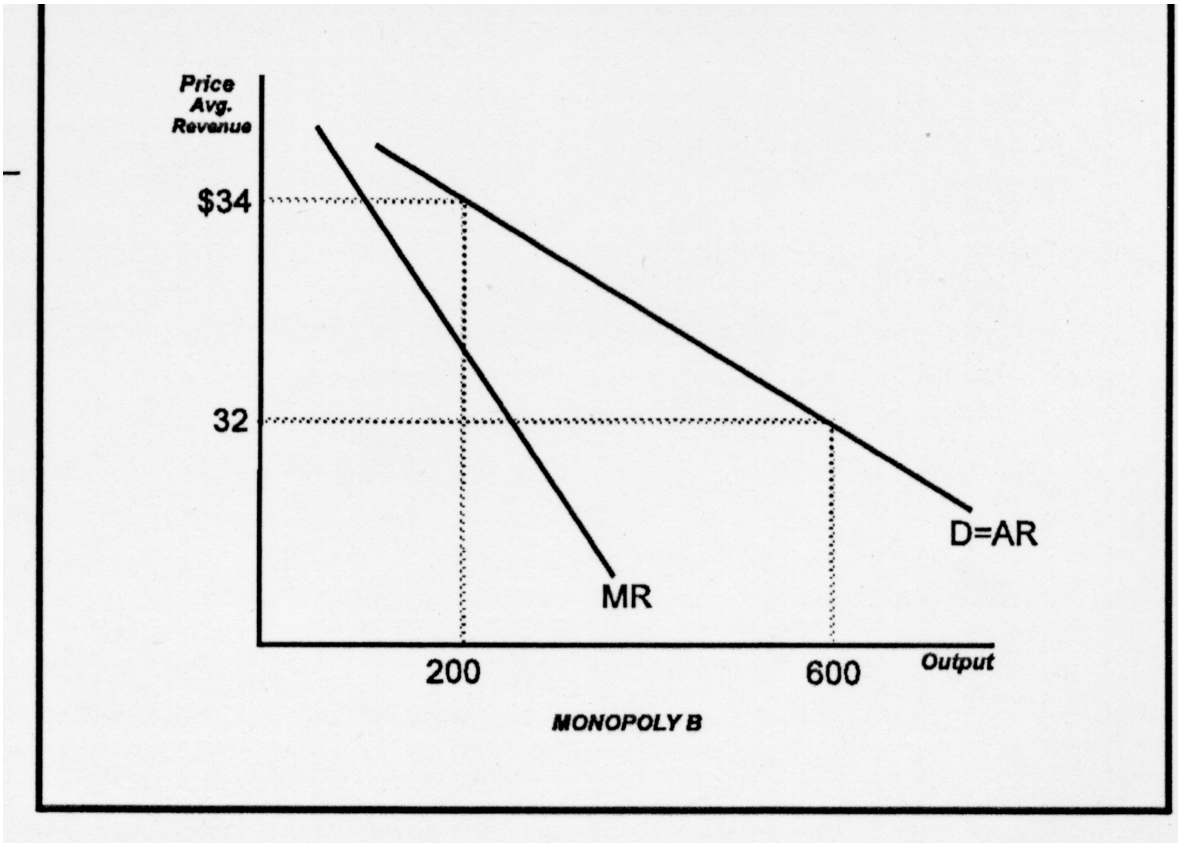


EXHIBIT 23
MONOPOLIST'S COST AND REVENUE TABLE

Output	Total Fixed Cost	Total Variable Cost	Total Cost	Average Variable Cost	Average Total Cost	Marginal Cost	Price	Total Revenue	Marginal Revenue
0	$5000	$0	$5000	-	-	-	$38	$0	-
100	5000	3000	8000	$30	$80	$30	37	3700	37
200	5000	5000	10000	25	50	20	36	7200	35
300	5000	6000	11000	20	36.67	10	35	10500	33
400	5000	6800	11800	17	29.50	8	34	13500	31
500	5000	8000	13000	16	26	12	33	16500	29
600	5000	10000	15000	16.67	25	20	32	19200	27
700	5000	13000	18000	16.67	25.71	30	31	21700	25
800	5000	16500	21500	20.63	26.88	35	30	24000	23
900	5000	22000	27000	24.44	30	55	29	26100	21

EXHIBIT 24
ABSOLUTE AND COMPARATIVE ADVANTAGE ILLUSTRATED IN TWO PRODUCTION POSSIBILITIES CURVES

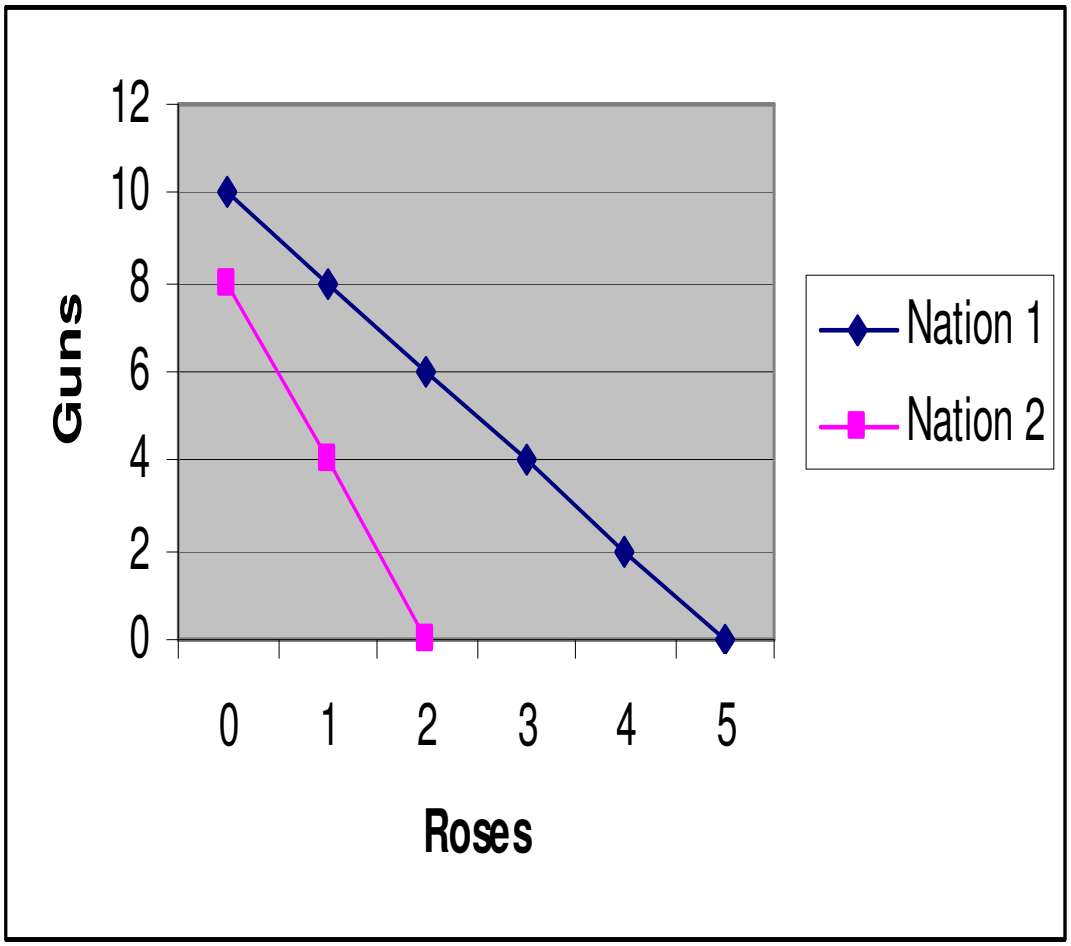


EXHIBIT 25
THE VELOCITY OF MONEY AND THE QUANTITY THEORY OF MONEY

The Velocity of Money:

$$V = GDP / \text{Money Supply Measure}$$

or

$$V = GDP / M$$

Velocity, V, represents the average number of times a unit of the money supply is spent during a certain period.

The Quantity Theory of Money:

$$V \times M = GDP = P \times Sc$$

The formula above is often called the Equation of Exchange. GDP is the quantity (supply) of goods times their prices, so GDP = P x Sc, where P = Average Price Level and Sc = Volume of Transactions of Goods and Services.

If V and Sc are relatively constant, then changes in P are proportional to changes in M.

The Quantity Theory of Money states that there is a direct relationship between the quantity of money in an economy and the level of prices of goods and services sold. According to the Quantity Theory of Money, if the amount of money in an economy doubles, price levels also double, causing inflation (the percentage rate at which the level of prices is rising in an economy). The consumer therefore pays twice as much for the same amount of the good or service.

EXHIBIT 26
THE AGGREGATE SUPPLY/AGGREGATE DEMAND (AS/AD) MODEL

The Supply and Demand graph below should look familiar to you: it is the supply and demand curves for a certain product, supposing shifts in supply and demand. But imagine instead that each S curve represented Aggregate Supply (AS) of all goods and services in an economy, and imagine that each D curve represented the Aggregate Demand (AD) of all goods and services in an economy. Furthermore, imagine that Price represented the overall Price Level of all goods and services (as represented by some price level measure like CPI), and imagine that Quantity represented the Real GDP (in other words, the output of goods and services in the economy). (Note: According to Keynesian economics the Aggregate Supply curve is sloping upwards like in the graph below, but according to classical economics the Aggregate Supply curve is perfectly vertical.) According to the AS/AD model, a shift in Aggregate Demand from D_1 to D_2, without any change in Aggregate Supply, would lead to an increase in price level as well as real GDP. (Things that can change Aggregate Demand include changes in business, consumer and government spending on goods and services.) And according to the AS/AD model, a shift in Aggregate Supply from S_1 to S_2, without any change in Aggregate Demand, would lead to a decrease in price level but an increase in real GDP. (Things that can change Aggregate Supply include changes in worker productivity, technology and resource availability.) And according to the AS/AD model, a shift in Aggregate Supply from S_1 to S_2 and a shift in Aggregate Demand from D_1 to D_2, would lead to an increase in real GDP without any change in price level.

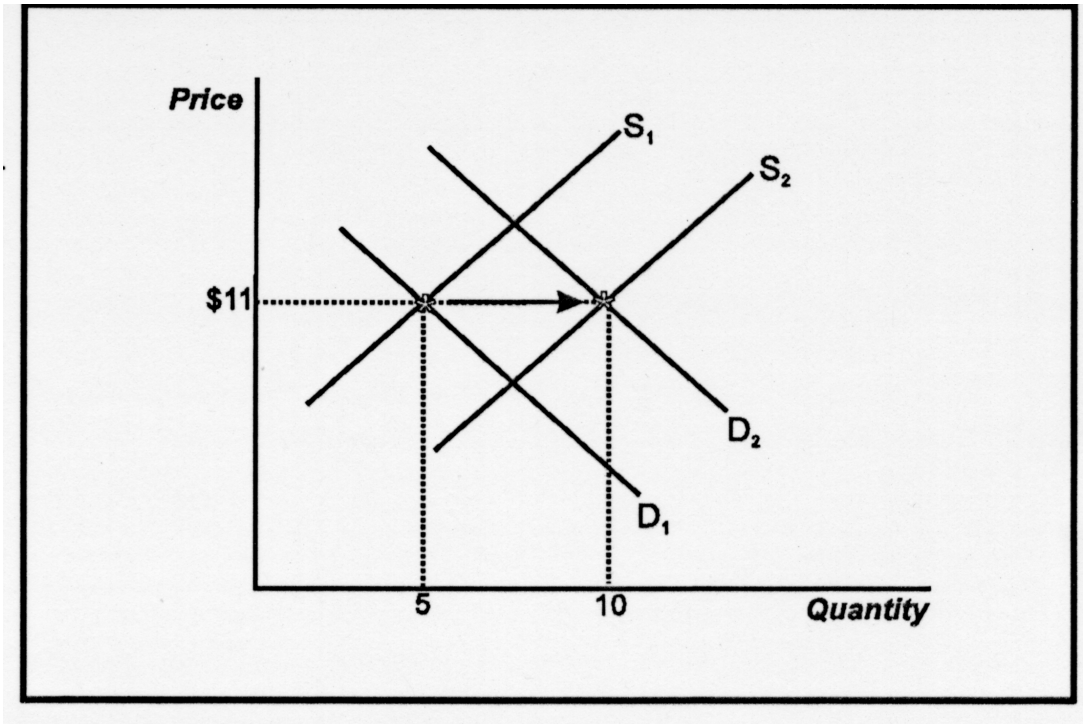


EXHIBIT 27
THE PHILLIPS CURVE

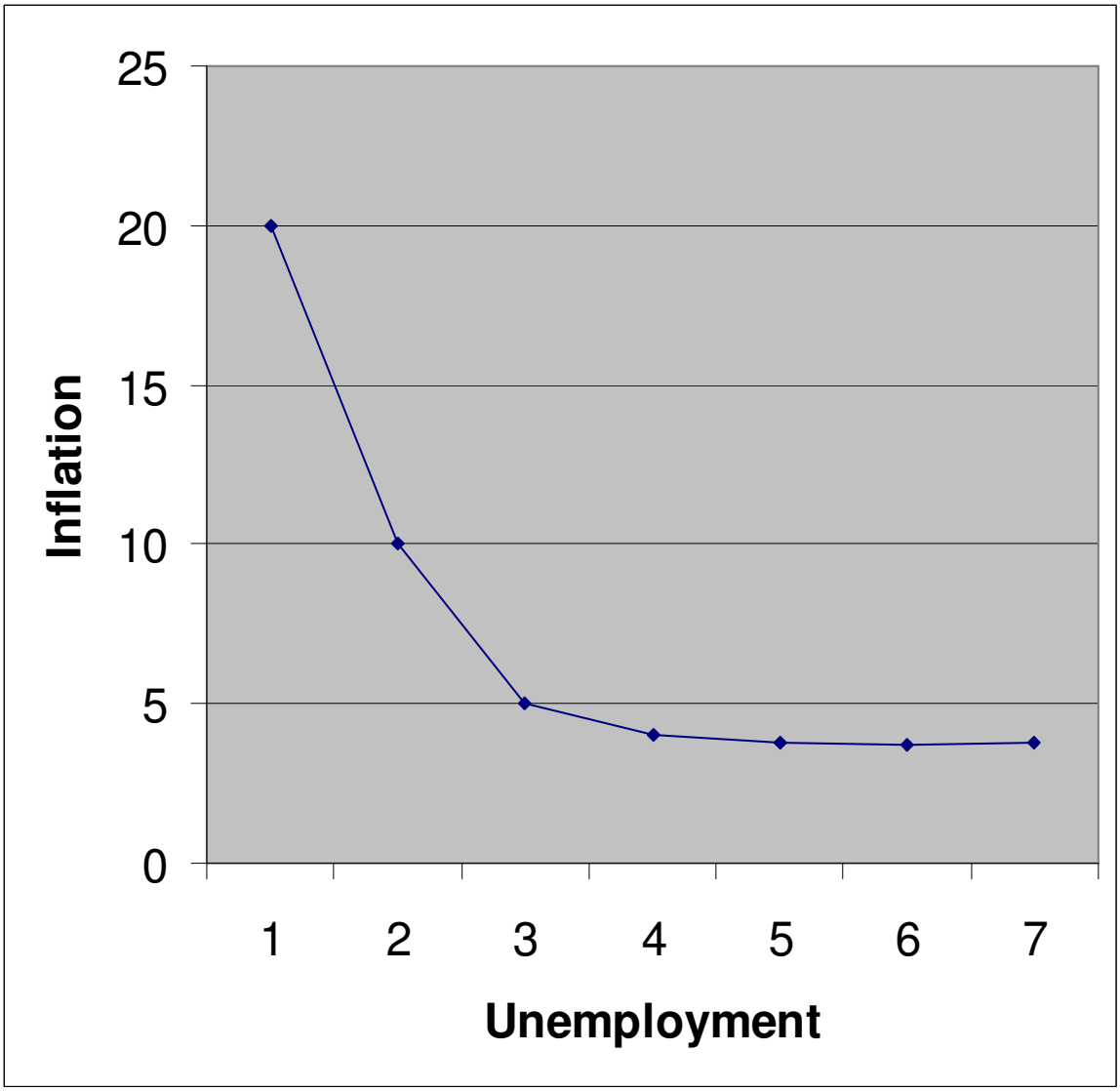


EXHIBIT 28
DETERMINING THE OPTIMAL LEVEL OF GOVERNMENT INTERFERENCE

Definitions and Formulae:

Marginal Social Cost (MSC) = Private Marginal Cost (MC) + Negative Externality

Marginal Social Benefit (MSB) = Private Marginal Cost (MB) + Positive Externality

Optimal Level where:

MSC = MSB

MSC = MC + Tax*

MSB = MB + Subsidy**

*where Tax = value of negative externality

**where Subsidy = value of positive externality

EXHIBIT 29
GDP AND OTHER INCOME MEASURES

Expenditures Approach:

$$GDP = C + I + G + X$$

where C = consumption expenditures by households
I = investment by firms
G = government purchases
X = net exports = exports - imports

Income Approach:

GDP = Wages + Proprietors' Income + Rental Income + Interest Income + Corporate Profits + Indirect Business Taxes + Depreciation

Per Capita:

GDP per Capita = GDP / Population

Relation to Other Measures:

Gross National Product (GNP) = GDP + Production by Americans Abroad – Production by Foreign Workers in America

National Income (NI) = Income Earned by Households and Firms

Personal Income (PI) = Income Earned by Households Only

Disposable Personal Income (DPI) = Personal Income (PI) – Personal Taxes

EXHIBIT 30
INFLATION AND UNEMPLOYMENT

Two Measures Often Used in Calculating Inflation:

CPI = 100 x (Total Cost in This Period of Basket of Goods) / (Total Cost in Base Period of Basket of Goods)

GDP Deflator = 100 x (Nominal GDP) / (Real GDP)

Official Inflation Rate:

$$\text{Inflation Rate} = 100 \times (CPI_{\text{This Period}} - CPI_{\text{Previous Period}}) / CPI_{\text{Previous Period}}$$

Interest Rates:

Nominal Interest Rate = Real Interest Rate + Expected Inflation

Unemployment Rate:

Unemployment Rate = (Number of Unemployed) / (Civilian Labor Force)

EXHIBIT 31
MONEY AND BANKING

Definition of Money:

anything that society generally accepts in payment for a good or service

Measures of Money Supply:

Currency = Coins and Paper Money

M1 = Currency + Transaction Accounts + Travelers' Checks

M2 = M1 + Savings Accounts + Certificates of Deposit + Other Liquid Assets

Money Multiplier:

Money Multiplier = 1 / Reserve Requirement

Change in Money Supply:

Change in Money Supply = Money Multiplier x Initial Deposit

EXHIBIT 32
ECONOMIC GROWTH

Determinants of Economic Growth:

1. Increased Resource Availability
   - Discovery of new natural resources
   - Growth of the labor force
   - Growth of the capital stock

2. Increased Productivity
   - More capital per unit of labor
   - Technological progress
   - Better educated and trained work force
   - Ethical progress in labor force

Definitions Related to Productivity:

Productivity = output per unit of input

Capital Productivity = amount of output per unit of plant and equipment

Labor Productivity = amount of output per unit of labor

Total Productivity = the amount of output per unit of all inputs

Definition of Economic Growth:

growth of output usually measured by percentage change in real GDP

EXHIBIT 33
INTERNATIONAL TRADE AND EXCHANGE

Formulae:

Current Account Balance = Balance of Trade + Net Transfers + Net Investment Income + Services Account

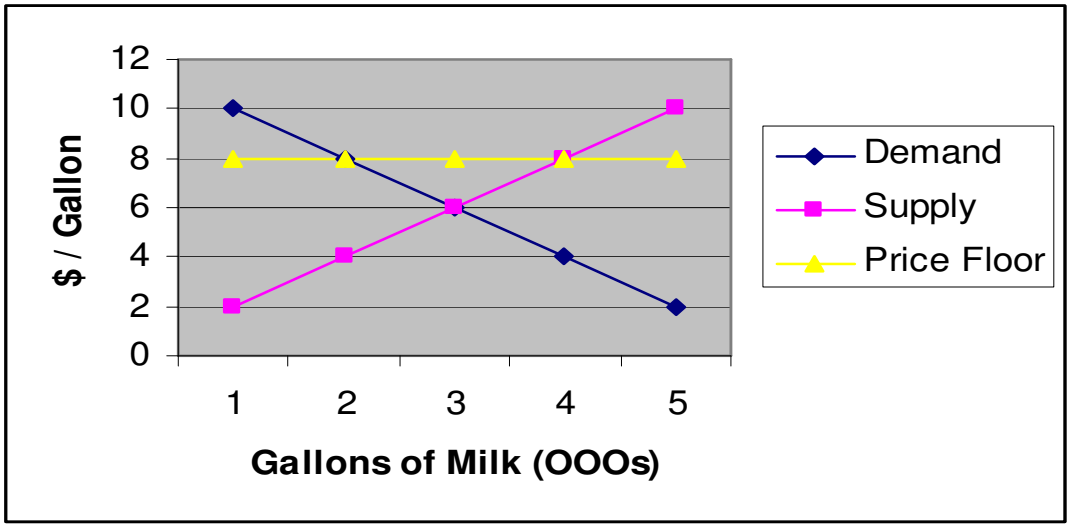
Balance of Trade (or Merchandise Trade Account) = Exports – Imports

Capital Account Balance = Foreign Purchases of US Assets – US Purchases of Foreign Assets + Central Bank's Trade in Foreign Exchange

Balance of Payments of a Nation = Current Account + Capital Account

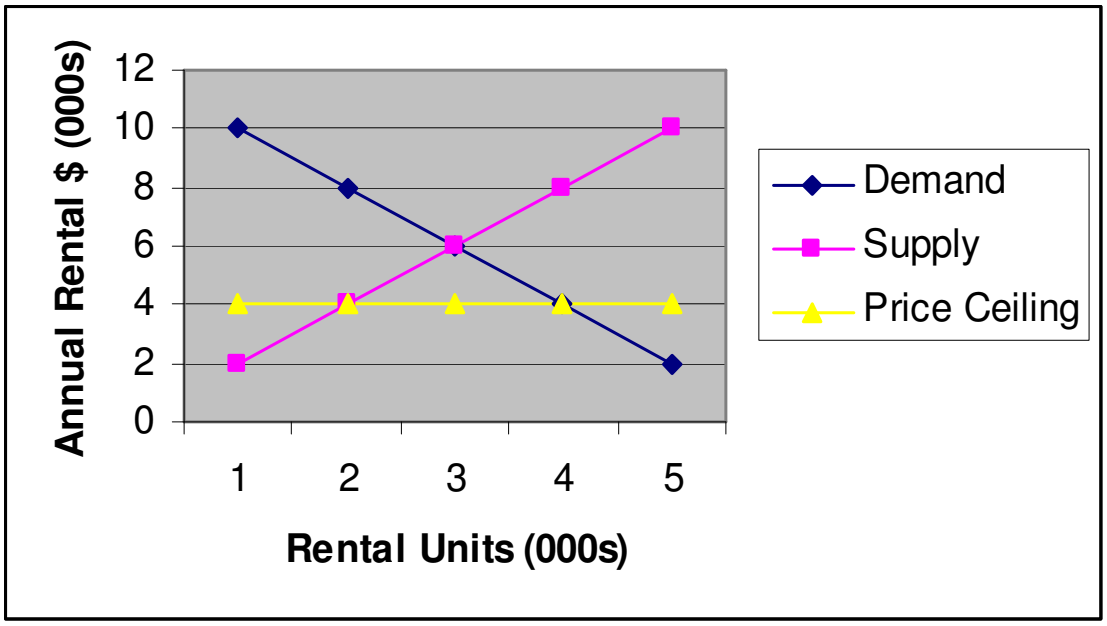
EXHIBIT 34
PRICE FLOORS AND PRICE CEILINGS

Example of Price Floor:



Question: At the price floor shown above, what quantity of milk would be supplied and what quantity of milk would be demanded?

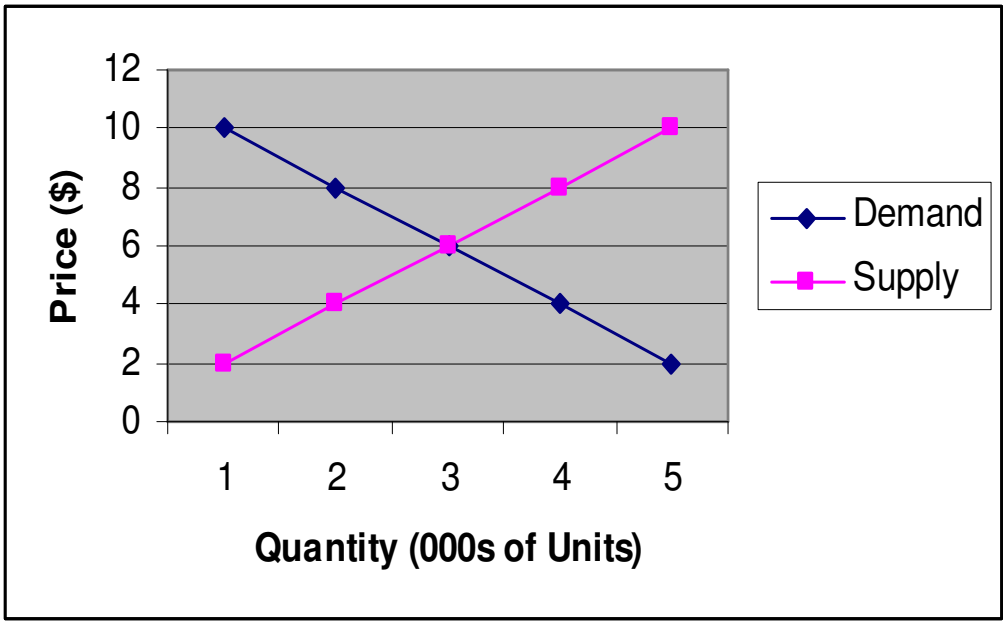
Example of Price Ceiling:



Question: At the price ceiling shown above, what quantity of rental units would be supplied and what quantity of rental units would be demanded?

EXHIBIT 35
PERFECT COMPETITION

Curves for Market in this Type of Industry:



Curves for Typical Firm in this Type of Industry:

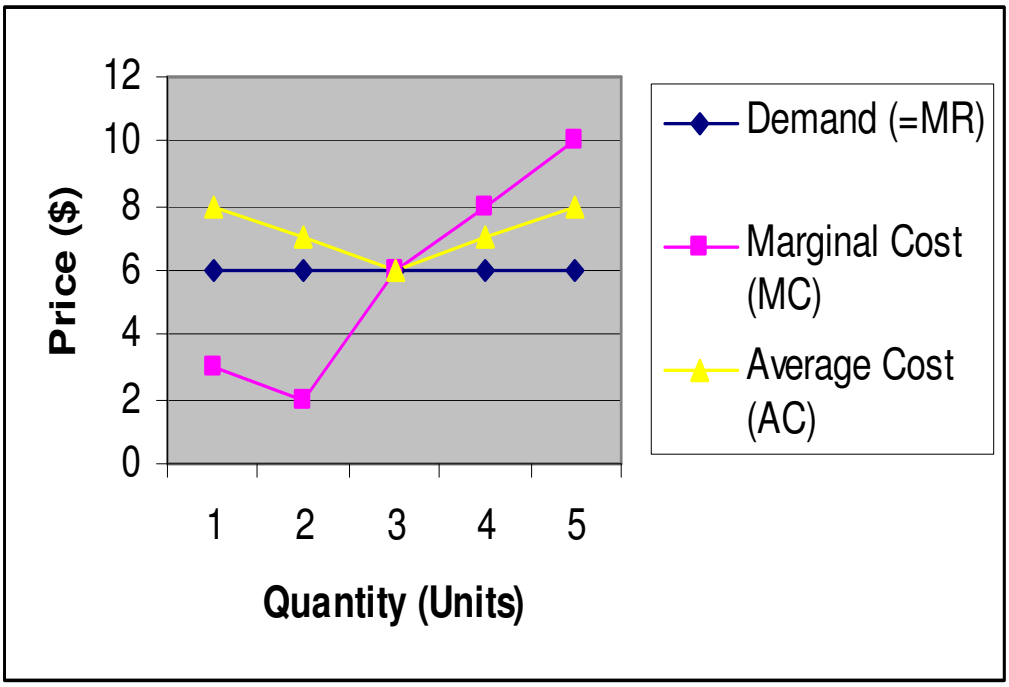
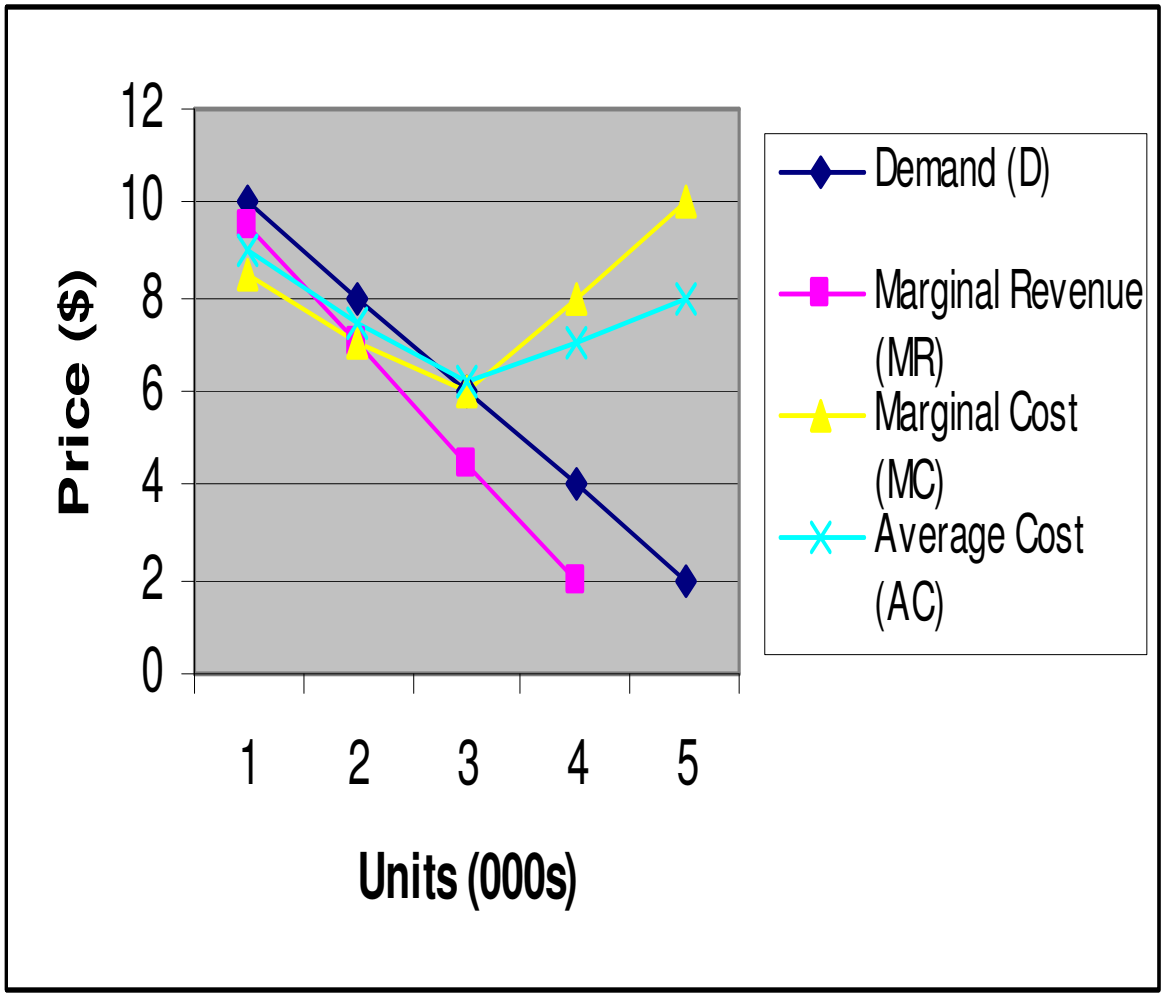
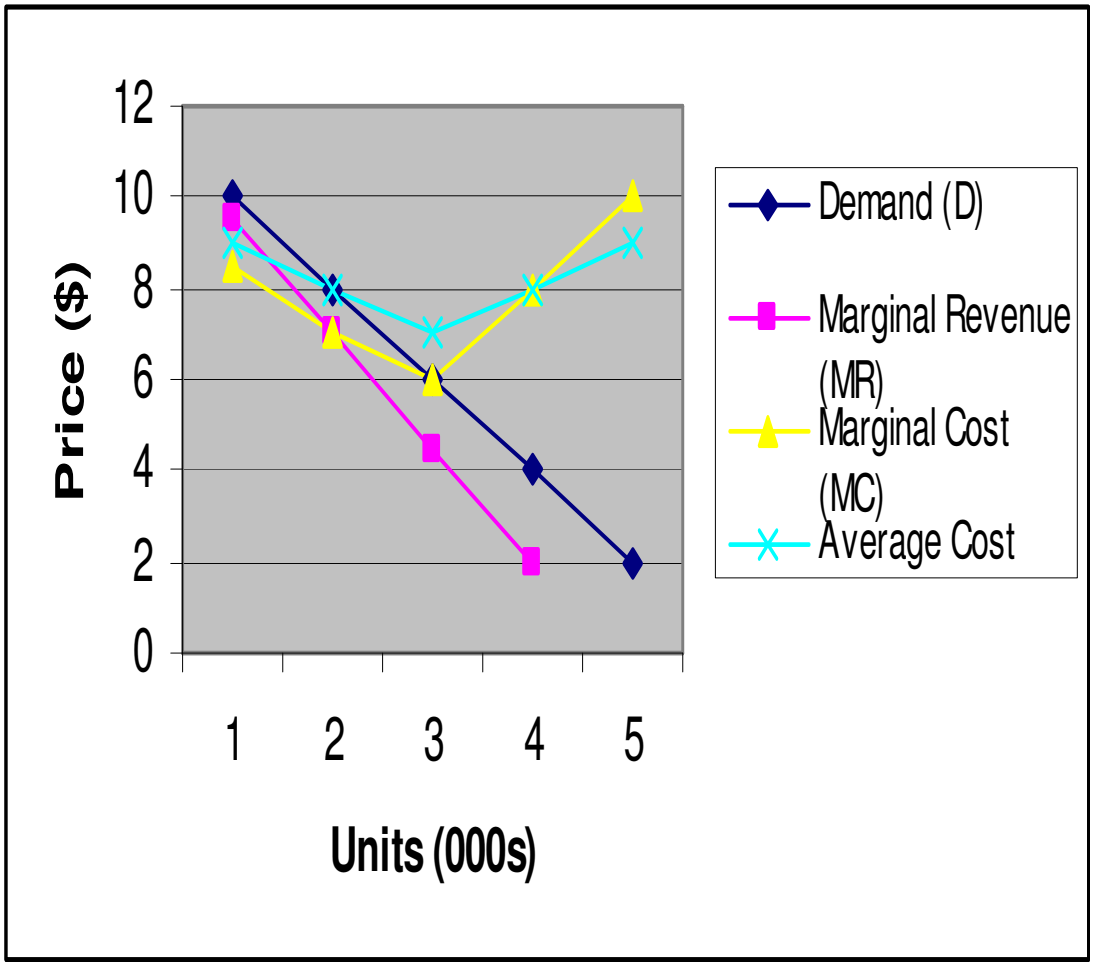


EXHIBIT 36
MONOPOLY



Given the above scenario experienced by a certain monopolistic firm in a certain industry, at how many units of production does the firm optimize its profitability? What price could the monopolistic firm charge at this level of production, given the market conditions represented above? If the industry were instead characterized by perfect competition, what would be the total units of production of all firms in the industry?

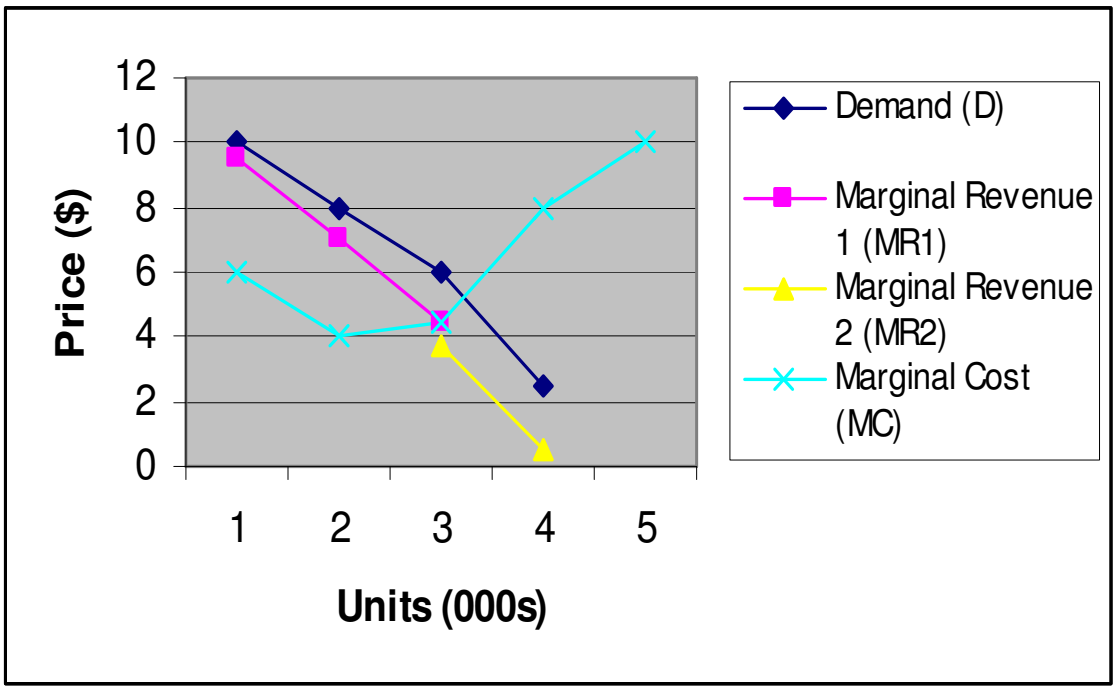
EXHIBIT 37
MONOPOLISTIC COMPETITION



Given the above long run equilibrium scenario experienced by a firm in an industry characterized by monopolistic competition, at how many units of production does the firm optimize its profitability? What price could the monopolistic firm charge at this level of production, given the market conditions represented above? What is its economic profit at this level of production, and how does it differ from the economic profitability experienced by a monopolist at its optimal profit level? If the industry were instead characterized by perfect competition, what would be the total units of production of all firms in the industry?

EXHIBIT 38
OLIGOPOLY

The Non-Collusive Kinked Demand Model:



At how many units of production is profit maximized for the oligopolist? Why?

Game Theory and Payoff Matrix:

Scenario #1

		Oligopolist #2 Strategy 1	Oligopolist #2 Strategy 2
Oligopolist #1	Strategy 1	$210 , $240	$120 , $300
	Strategy 2	$300 , $150	$240 , $270

Scenario #2

		Oligopolist #2 Strategy 1	Oligopolist #2 Strategy 2
Oligopolist #1	Strategy 1	$300 , $600	$200 , $400
	Strategy 2	$500 , $300	$250 , $0

In the payoff matrixes above, the first entry in each cell shows the profits of Oligopolist #1 and the second the profits of Oligopolist #2. The dominant strategy for each oligopolist in each scenario is that which renders the higher profits, no matter what the other oligopolist does. For each scenario above, what, if any, is the dominant strategy for each oligopolist?

EXHIBIT 39
RESOURCE MARKETS

Definitions:

Marginal Revenue Product (MRP) = addition to the firm's revenue as the result of an additional output for an additional unit of labor

Marginal Factor Cost (MFC) = additional cost for each additional unit of labor hired

Marginal Physical Product (MPP) = additional output produced as one more unit of labor (resource) is added

Formulae:

$(MRP_L / MFC_L) = (MRP_K / MFC_K) = 1$ (Profit Maximization in the Hire of Resources)

$(MPP_L / MFC_L) = (MPP_K / MFC_K)$ (Criterion for Cost Minimization in the Hire of Resources)

Wage Elasticity of Demand = % Change Qty Demanded of Labor / % Change Wage Rate

EXHIBIT 40
ALTERNATIVE URLS

The website that had the textbook and problems for the Economics course extra credit work may have been changed. Here are temporary alternative urls:

http://www.puritans.net/Westminster_Covenant_Academy/exhibits/Econ111MicroExtraCreditText.pdf

http://www.puritans.net/Westminster_Covenant_Academy/exhibits/Econ111MacroExtraCreditText.pdf

http://www.puritans.net/Westminster_Covenant_Academy/exhibits/Econ111MicroExtraCreditProblems.pdf

http://www.puritans.net/Westminster_Covenant_Academy/exhibits/Econ111MacroExtraCreditProblems.pdf