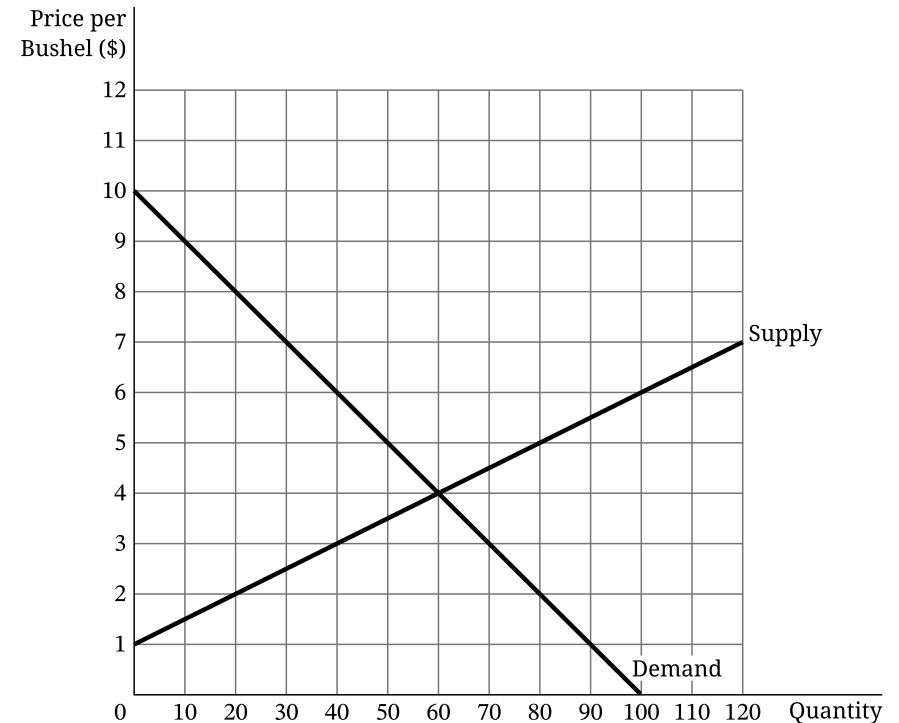


1. Voda Reservoir is a profit-maximizing firm and the only producer of bottled water in a country. Currently, Voda Reservoir is earning negative economic profit.

A. Draw a correctly labeled graph for Voda Reservoir and show each of the following.

- The profit-maximizing quantity, labeled Q_M
 - The profit-maximizing price, labeled P_M
 - The average total cost curve consistent with Voda Reservoir earning negative economic profit, labeled ATC
 - The area of deadweight loss, shaded completely
- B. Suppose the government requires Voda Reservoir to produce the socially optimal quantity of bottled water. On your graph in part A, show the socially optimal quantity of bottled water, labeled Q_S .
- C. Suppose instead the government grants a per-unit subsidy to Voda Reservoir. What will happen to Voda Reservoir's profit-maximizing quantity of bottled water? Explain.
- D. Suppose new producers have entered the bottled-water market and Voda Reservoir continues to operate in the bottled-water market. Will the demand for Voda Reservoir's bottled water become more elastic, become less elastic, or stay the same as new producers enter the market?
- E. Voda Reservoir hires workers in a perfectly competitive labor market.
- If the demand for bottled water increases, what will happen to Voda Reservoir's demand for labor? Explain.
 - The government implements a new regulation that increases the minimum age required for a worker to be employed in a bottled-water factory. What will happen to the market wage in the short run? Explain.

2. The graph provided shows the market for rice in the country of Rushland.



- Calculate the total economic surplus at market equilibrium. Show your work.
- If the government sets a price floor at \$3 per bushel, will there be a surplus, a shortage, or neither? Explain.
- Suppose that instead of the price floor, Rushland engages in international trade and the world price of rice is \$5 per bushel.
 - Will Rushland export or import rice? Explain using numbers from the graph.
 - Calculate the domestic consumer surplus when Rushland engages in international trade. Show your work.
 - Calculate the total revenue that Rushland's farmers will earn at the world price. Show your work.

3. Tony's Trinkets and Bitaly's Bracelets are the only two firms in a town that produce and sell jewelry. Tony's Trinkets is deciding whether to produce Unique jewelry or Typical jewelry. Bitaly's Bracelets is deciding whether to produce Gold jewelry or Silver jewelry. The payoff matrix shows the payoffs for each combination of strategies. The first entry in each cell shows Tony's Trinkets' profit, and the second entry shows Bitaly's Bracelets' profit. Each firm independently and simultaneously chooses its strategy. Assume that the two firms know all the information in the matrix and do not cooperate.

		Bitaly's Bracelets	
		Gold	Silver
Tony's Trinkets	Unique	\$15, \$21	\$20, \$19
	Typical	\$10, \$7	\$21, \$16

- A. Suppose Bitaly's Bracelets chooses to produce Silver jewelry. Is choosing to produce Unique jewelry the best choice for Tony's Trinkets? Explain using numbers from the payoff matrix.
- B. Is Bitaly's Bracelets' dominant strategy to produce Gold jewelry, to produce Silver jewelry, or does it not have a dominant strategy? Explain using numbers from the payoff matrix.
- C. Identify all Nash equilibria for this game.
- D. Suppose Tony's Trinkets' profit from producing Typical jewelry increases regardless of what Bitaly's Bracelets does. What is the minimum amount by which Tony's Trinkets' profit must increase in order for Typical jewelry to become a dominant strategy: \$2, \$4, \$6, \$11, or \$15?
- E. Suppose instead that these two firms now cooperate and merge into one firm to maximize their combined profits. The new firm will have two locations and continue to face the same actions and payoffs. Calculate the new firm's maximum combined profit. Show your work.

STOP
END OF EXAM

1. Deskward is a typical profit-maximizing firm that produces and sells wooden desks in a constant-cost, perfectly competitive market that is in long-run equilibrium.
- A. Draw correctly labeled side-by-side graphs for the wooden desk market and for Deskward and show each of the following.
- The market equilibrium price and quantity, labeled P_M and Q_M , respectively
 - Deskward's profit-maximizing price and quantity, labeled P_F and Q_F , respectively
 - Deskward's average total cost curve consistent with long-run equilibrium, labeled ATC
- B. If the monthly rent, a fixed cost, on Deskward's factory building increases, what will happen to the firm's profit-maximizing quantity in the short run? Explain.
- C. Suppose the government is considering granting a per-unit subsidy to producers of wooden desks. On your market graph in part A, show the short-run effect of a per-unit subsidy on each of the following.
- The new market equilibrium price and quantity of wooden desks, labeled P^* and Q^* , respectively
 - The area representing the total cost of the subsidy to the government, shaded completely
- D. Instead of the per-unit subsidy, suppose the government imposes a binding price floor in the market for wooden desks. Will the price floor result in a shortage of wooden desks, a surplus of wooden desks, or neither? Explain.
- E. Deskward also produces chairs. Deskward increases its production from 500 chairs to 600 chairs, and its long-run total cost increases from \$80,000 to \$108,000.
- Calculate Deskward's long-run average total cost of producing 500 chairs. Show your work.
 - As Deskward increases production from 500 chairs to 600 chairs, is Deskward experiencing economies of scale, diseconomies of scale, or the efficient scale? Explain using numbers.

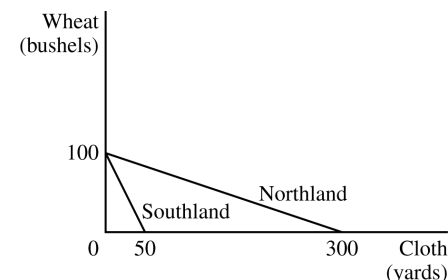
3. The table provided shows the marginal utility for Lucy when she consumes Good X and Good Y.

Quantity of Good X	Marginal Utility of Good X (utils)	Quantity of Good Y	Marginal Utility of Good Y (utils)
1	20	1	28
2	16	2	24
3	12	3	16
4	8	4	8
5	4	5	-4
6	-2	6	-8

- A. If Good X and Good Y are free, how many units of each good will maximize Lucy's total utility?
- B. Calculate Lucy's total utility if she consumes 2 units of Good X and 2 units of Good Y. Show your work.
- C. Suppose instead that the price of each unit of Good X is \$2 and the price of each unit of Good Y is \$4. Lucy has a budget of \$20 to spend on the two goods.
- If Lucy purchases 2 units of Good X, what is the maximum quantity of Good Y Lucy can purchase?
 - What is Lucy's optimal combination of Good X and Good Y? Explain your answer using marginal analysis and numbers.
- D. Suppose the price elasticity of demand for Good X is -2.0 , the price elasticity of demand for Good Y is -0.8 , and the cross-price elasticity of demand between Good X and Good Y is $+1.6$. Are goods X and Y complementary goods, substitute goods, normal goods, or inferior goods? Explain.

STOP
END OF EXAM

2. The graph shows the production possibilities curves for Northland and Southland.



- (a) Which country has a comparative advantage in producing wheat? Explain using numbers.
- (b) Identify a specific number of yards of cloth that could be traded for 10 bushels of wheat and would be mutually beneficial to Northland and Southland.
- (c) Southland's maximum possible output of wheat falls from 100 bushels to 75 bushels. Assuming no other changes, will Southland have a comparative advantage in producing cloth? Explain using numbers.
- (d) Turnips are produced in a perfectly competitive market in Alderia, a third country, which does not engage in international trade. Runoff from turnip fields pollutes Alderia's rivers, hurting its residents.
- Does the turnip market equilibrium result in an efficient allocation of resources? Explain using marginal analysis.
 - In an effort to reduce pollution, Alderia's government imposes a lump-sum tax on turnip production. What will be the impact on the turnip market equilibrium price and quantity in the short run?

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.