

ECON 100: Introduction to Economics

Exam 2, Fall 2026

- Define any variables and/or state any assumptions you need to answer the problems.
 - All materials should be put away before beginning the exam. Use of cell phones during the exam for any purpose is forbidden. The Honor Code applies to this exam.
 - Please write your answers in the space provided.
 - Keep your answers for explanations short but clear. Your goal is to convince a skeptical grader that you understand the relevant concepts well enough to answer the question you are given. Cite specific concepts from class for full credit.
 - The questions on the exam sum to 56 points.
 - Good luck on your Econ test!
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1. (1 point) What is your name?
2. (1 point) What section are you in?

1 True/False Questions

Indicate “T”rue or “F”alse for each of the following statements or claims. For each false statement, if you correctly and clearly explain why it is false, I will give you a bonus point. No explanations necessary for claims or statements which you think are true.

3. (2 points) Suppose that, within a market, supply is perfectly elastic and demand is perfectly inelastic. **Claim:** For any possible shift in supply and/or demand, equilibrium price will remain unchanged.

4. (2 points) Suppose the government implements a binding quota in the market for water bottles, a perfectly competitive market. A quota is a government policy that sets a maximum quantity of water bottles that can be bought and sold. **Claim:** As a result of the quota, the impact on producer surplus is unclear for firms which sell water bottles both before and after the quota is implemented.

5. (2 points) Suppose the market for cider donuts is in equilibrium. **Claim:** A binding price ceiling \$2 below the equilibrium price will result in deadweight loss equal to twice the deadweight loss that results from a binding price ceiling \$1 below the equilibrium price.

6. (2 points) Define a monopolist's markup as the ratio between the price the monopolist charges and the monopolist's marginal cost (e.g., a markup of 2 indicates a monopolist is charging twice their marginal cost). **Claim:** Markup increases as the absolute value of the elasticity of quantity demanded decreases.
7. (2 points) Anna opens a lemonade stand selling cups of lemonade. She pays her friend \$10 for a table and chair to operate her stand. Her cost to produce 1 extra cup of lemonade is always \$0.50. She is the only lemonade stand on her street, so charges the monopolist's profit-maximizing price of \$2 per cup of lemonade. She can't stop anyone else from opening their own lemonade stand, but so far no one else has. Assume that any other stand would face the same costs as Anna, that \$10 is a low cost of entry, and that any other stand's lemonade would be identical to Anna's. **Claim:** In the long-run, Anna's profit will decrease.

2 Multiple Choice Questions

Circle the best answer to each question. There is only one answer for each question. No explanation necessary.

8. (2 points) Suppose within a market the absolute value of the own-price elasticity of quantity demanded is one-half the own-price elasticity of quantity supplied. Assume demand and supply are both linear functions (e.g., $Q^D = a - bP$ and $Q^S = c + dP$). Also suppose quantity demanded increases by k at every price, and quantity supplied increases by $2k$ at every price. Which of the following correctly describes the impact of these shifts on equilibrium price and quantity?
- A. Equilibrium quantity increases, equilibrium price increases.
 - B. Equilibrium quantity increases, equilibrium price remains constant.
 - C. Equilibrium quantity increases, equilibrium price decreases.
 - D. Equilibrium quantity increases, the effect of equilibrium price is unclear.
9. (2 points) Suppose Clinton offers a student-carnival, and the carnival is a monopolist seeking to maximize profits. Assume individual student demand for rides is given by $q = 10 - P$, where P is the price of a given ride and q is the average number of rides per student. The carnival's marginal cost of running any ride is \$2. Based on what we have learned in class, which is the most profitable pricing scheme the carnival can employ?
- A. The carnival charges an entry fee of \$32 and also charges \$4 per ride.
 - B. The carnival engages in perfect price discrimination, charging the student's marginal benefit for each ride from their first through eighth ride.
 - C. Neither of these schemes are the most profitable.
 - D. Both of these schemes are equally the most profitable.

10. (2 points) Suppose the market for butter is perfectly competitive and currently at the equilibrium price and quantity. All firms have identical cost structures. Then, Olive Oil Inc runs an ad campaign about the health benefits of olive oil over butter, leading many consumers to switch from using butter to olive oil when cooking. At the same time, the cow fever season is not as bad as expected, meaning dairy farms' variable costs of producing butter fall. **Question:** Which of the following best describes the impact of these changes on a firm's short-run decision?
- A. Dairy farms' point at which they shut down has decreased because equilibrium price has decreased.
 - B. Dairy farms' point at which they shut down has increased because equilibrium price has decreased.
 - C. Dairy farms' point at which they shut down has decreased because farms' marginal cost has decreased.
 - D. Dairy farms' point at which they shut down has decreased because farms' average variable cost has decreased.
11. (2 points) All the following statements are equivalent except for which one?
- A. Total surplus is maximized.
 - B. Perfectly competitive firms are producing at the profit maximizing price and quantity.
 - C. Price equals marginal revenue equals marginal cost.
 - D. Producer surplus is maximized assuming no price discrimination.
12. (2 points) A perfectly competitive market has identical firms, each with total cost $TC = 98 + 2q^2$. Marginal cost is $MC = 4q$. Market demand is $P = 49 - 0.2Q$, where Q is total market quantity. **Question:** How many firms are in the market in long-run equilibrium?
- A. 7
 - B. 28
 - C. 15
 - D. 105

3 Short Answer Questions

These questions all require an explanation unless no explanation necessary is indicated in the question. Remember you are trying to convince me you understand the why and the how of what you are doing, not simply getting the answer correct. Cite specific concepts from class in your answers for full credit.

13. **Rockefeller and the Railroads.** Consider the market for shipping freight by rail. Suppose the market is currently perfectly competitive, and each railroad pays a fixed cost of \$25 to rent its railcars from the local railcar manufacturer. At this perfectly competitive equilibrium each railroad has an average variable cost of \$6. Marginal cost equals \$10 at every quantity relevant to this problem. That is to say all firms have identical costs. Suppose market demand for rail shipments is given by $P = 24 - Q^D$, where Q is the number of shipments per week and P is the price per shipment in dollars.
- (a) (8 points) Assume \$10 is also the minimum of each firm's average total cost function. Find the long-run perfectly competitive equilibrium price and quantity. Indicate this equilibrium price and quantity on a supply-demand diagram. Be sure to show all calculations and label your axes. No explanation necessary.

- (b) (6 points) How much would Rockefeller be willing to pay per year in order to become the monopolist in this market? Show all calculations.
- (c) (6 points) Rockefeller decides to charge a price of \$8 per shipment, below his marginal cost, in order to drive out his competition. If he sustains this price for three years (52 weeks per year), what is Rockefeller's quantity of shipments sold during this period and what is his total loss?
- (d) (8 points) Based on what we have learned in class, is this behavior consistent with profit-maximizing behavior? How would a perfectly competitive firm with this cost structure react in both the short-run and the long-run to a price of \$8?

- (e) (6 points) How many years of monopoly pricing would it take for Rockefeller to recoup his losses?

Extra Scrap Page