Introduction to Perfect Competition

Problem Set

1. For the Colorado beef industry to be classified as perfectly competitive ranchers in Colorado must have _____ on prices and beef is a _____ product.
   a. no noticeable effect; standardized
   b. a huge effect; standardized
   c. a huge effect; differentiated
   d. no noticeable effect; differentiated
   e. no noticeable effect; price inelastic

2. When a firm cannot affect the market price of the good that it sells, it is said to be a:
   a. price-taker.
   b. natural monopoly.
   c. dominant firm.
   d. cartel.
   e. price discriminating monopoly.

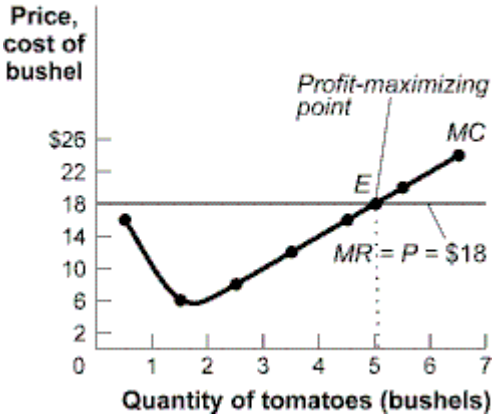
3. The market structure called _____ is described as having a single producer selling a single, undifferentiated product.
   a. perfect competition
   b. monopoly
   c. oligopoly
   d. monopolistic competition
   e. duopoly

4. Which of the following is not a barrier to entry?
   a. control of an input essential for production
   b. government-created barriers such as patents
   c. a ban on certain kinds of advertising
   d. the existence of significant economies of scale
   e. the elimination of trade barriers such as tariffs.

5. In perfect competition:
   a. a firm's total revenue is found by multiplying market price by the firm's quantity of output.
   b. the firm's total revenue curve is a linear, downward-sloping line.
   c. at any price, the greater the quantity sold, the greater is a firm's marginal revenue.
   d. the firm's total revenue curve is nonlinear.
   e. at any price, the greater the quantity sold, the smaller is a firm's marginal revenue.

6. The marginal revenue received by a firm in a perfectly competitive market:
   a. is greater than the market price.
   b. is less than the market price.
   c. is equal to its average revenue.
   d. increases with the quantity of output sold.
   e. decreases with the quantity of output sold.

Use the graph below to answer question 12.



7. If market price increases to $20, marginal revenue _____ and profit-maximizing output _____.
   a. increases; increases
   b. increases; decreases
   c. decreases; increases
   d. decreases; decreases
   e. remains constant; remains constant

8. A monopolistically competitive industry is made up of:
   a. a few firms, each producing a very differentiated good.
   b. one firm that produces a very standardized good.
   c. market participants who are all price-takers.
   d. many firms producing a differentiated product.
   e. many firms producing an identical product.

9. A monopolistically competitive industry such as baked goods and a perfectly competitive industry like wheat farming are alike in that:
   a. firms in both types of industries produce identical products.
   b. firms in both types of industries produce similar but not identical products.
   c. barriers to entry in both industries are large.
   d. there are many firms in each industry.
   e. all firms face a horizontal demand curve for their products.

10. If it produces, a perfectly competitive firm will maximize profits at the output where:
    a. marginal revenue equals marginal cost.
    b. marginal revenue equals price.
    c. price equals average total cost.
    d. price exceeds marginal cost.
    e. price equals minimum average variable cost.

Use the table below to answer question 18.

Output	Total Cost
0	$10
1	60
2	80
3	110
4	170
5	245

11. If the market price is $67.50, how many units of output will the firm produce?
    a. one
    b. two
    c. three
    d. four
    e. five

12. Zoe's Bakery operates in a perfectly competitive industry. Suppose that when the market price is $5, the profit-maximizing output level of pastries is 150 units, with average total cost of $4, and average variable cost of $3. From this we know Zoe's marginal cost is _____, and her short-run profits are _____.
    a. $2; $150
    b. $5; $300
    c. $1; $150
    d. $1; $300
    e. $5; $150

13. In the short run, a perfectly competitive firm produces output and earns zero economic profit if:
    a. *P* > *ATC*.
    b. *AVC* < *P* < *ATC*.
    c. *P* < *AVC*.
    d. *AVC* > *P* > *ATC*.
    e. *P* = *ATC*.

Use the table below to answer questions 21-22.

Quantity per Period	Total Cost
0	$10
1	16
2	20
3	22
4	24
5	25
6	27
7	30
8	34
9	39
10	45

14. If the market price is $4.50, the profit-maximizing quantity of output is _____ units.
    a. five
    b. seven
    c. eight
    d. nine
    e. ten

15. If the market price is $3.50, the profit-maximizing quantity of output is _____ units.
    a. five
    b. ten
    c. eight
    d. nine
    e. seven

16. If a perfectly competitive firm increases production from 10 units to 11 units, and the market price is $20 per unit, total revenue for 11 units is:
    a. $10.
    b. $20.
    c. $200.
    d. $220.
    e. $110.

17. Complete the matrix by writing in the appropriate market structure given the level of differentiation and number of producers in the market.

		Are products differentiated?	
		No	Yes
How many firms are there?	One	Monopoly	Not applicable
	Few	Oligopoly	
	Many	Perfect competition	Monopolistic competition

18. In each of the following situations, what type of market structure do you think the industry represents? Explain your answer.

    a. There are two producers of aluminum in the world, a good sold in many places. With only two producers in the world, each producer will represent a sizable share of the market. So the industry will not be perfectly competitive. It is an oligopoly because there are few producers.
    b. The price of natural gas is determined by global supply and demand. A small share of that global supply is produced by a handful of companies located in the North Sea. Because each producer of natural gas from the North Sea has only a small market share of total world supply of natural gas, and since natural gas is a standardized product, the natural gas industry will be perfectly competitive.
    c. Dozens of designers sell high-fashion clothes. Each designer has a distinctive style and a loyal clientele. Because each designer has a distinctive style, high-fashion clothes are not a standardized product. So the industry will not be perfectly competitive. It is monopolistic competition.
    d. There are many baseball teams in the United States, one or two in each major city, and each selling tickets to its home-town events. The market described here is the market in each city for tickets to baseball games. Since there are only one or two teams in each major city, each team will represent a sizeable share of the market. So the industry will not be perfectly competitive. It is a monopoly within its city and an oligopoly in the country.
    e. There are three producers of aluminum in the world, a good sold in many places. With only three producers in the world, each producer represents a sizeable share of the market. The industry is an oligopoly.
    f. There are thousands of farms that produce indistinguishable soybeans to thousands of buyers. Because the soybeans are indistinguishable from each other they are a standard product. With thousands of producers each farm has only a small market share. Therefore the industry is perfectly competitive.
    g. A small town in the middle Alaska has one bicycle shop. Because there is only one producer in this market it is a monopoly.

19. Refer to the table provided. The price is equal to $14.

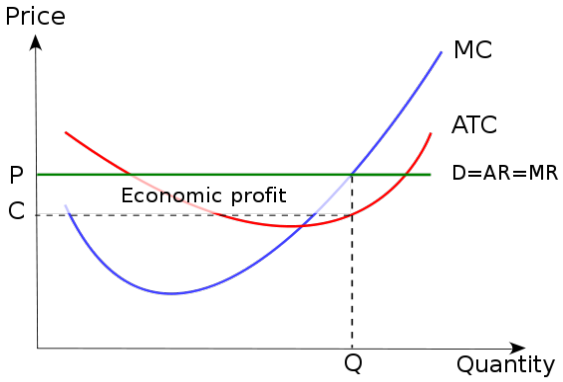
    a. What is the firm's marginal cost at each quantity.

Quantity of Tomatoes (Bushels)	Variable Cost (VC)	Total Cost (TC)	Marginal Cost (MC)
0	$0	$14	----
1	$16	$30	$16
2	$22	$36	$6
3	$30	$44	$8
4	$42	$56	$12
5	$58	$72	$16
6	$78	$92	$20
7	$102	$116	$24

    b. Determine the firm's profit-maximizing level of output. The profit-maximizing quantity is 4.
    c. What is the firm's profit at the profit-maximizing level of output? The firm's maximum profit is TR — TC = (4 X $14) — $56 = $56 — $56 = 0

20. If a firm has a total cost of $500 at a quantity of 50 units, and it is at that quantity that average total cost is minimized for the firm, what is the lowest price that would allow the firm to break even (that is, earn a normal profit)? Explain. The lowest price that would allow the firm to break even is $10, for the minimum average total cost is $500/50 = $10, and price must at least equal minimum average total cost in order for the firm to break even.

21. Based on what you've learned thus far about perfect competition, draw a correctly-labeled graph showing a perfectly-competitive firm earning more than normal profit.


Price
MC
ATC
P
D=AR=MR
Economic profit
C
Q
Quantity