EE211 Section 1
Homework 6 Answers
Explain your answers with graph in details.

Mankiw, N.G., (2023) **Principles of Microeconomics**, 10th ed., Cengage, (ISBN-13: 978-981-5119-30-5)

Chapter 15
Problems and Applications # 7, 8 and 9

7.

a. Profit is equal to (P – ATC) × Q. Price is equal to AR. Therefore, profit is ($10 – $8) × 100 = $200.
b. For firms in perfect competition, marginal revenue and average revenue are equal. Since profit maximization also implies that marginal revenue is equal to marginal cost, marginal cost must be $10.
c. Average fixed cost is equal to AFC /Q which is $200/100 = $2. Since average variable cost is equal to average total cost minus average fixed cost, AVC = $8 − $2 = $6.
d. Since average total cost is less than marginal cost, average total cost must be rising. Therefore, the efficient scale must occur at an output level less than 100.

8.

a. If firms are currently incurring losses, price must be less than average total cost. However, because firms in the industry are currently producing output, price must be greater than average variable cost. If firms are maximizing profits, price must be equal to marginal cost.
b. The present situation is depicted in Figure A. The firm is currently producing q1 units of output at a price of P1.

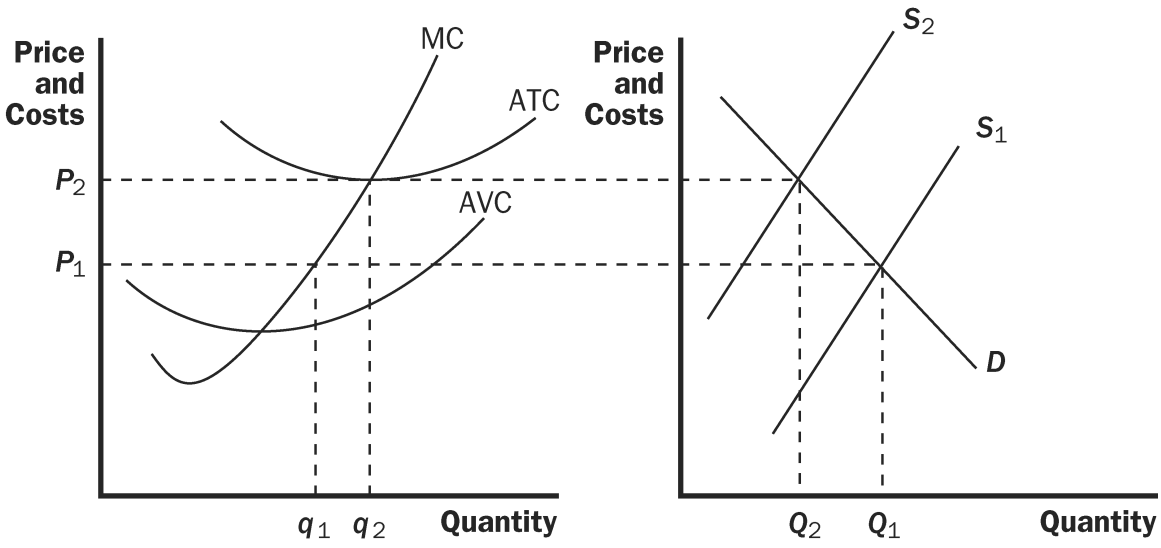

Figure A.

c. Figure 6 also shows how the market will adjust in the long run. Because firms are incurring losses, there will be exit in this industry. This means that the market supply curve will shift to the left, increasing the price of the product. As the price rises, the remaining firms will increase quantity supplied; marginal cost will increase. Exit will continue until price is equal to minimum average total cost. Average total cost will be lower in the long run than in the short run. The total quantity supplied in the market will fall.

9.

a. The table below shows *TC* and *ATC* for a typical firm:

Q	***TC***	***ATC***
1	11	11
2	15	7.5
3	21	7
4	29	7.25
5	39	7.8
6	51	8.5

b. At a price of $11, quantity demanded is 200. With marginal revenue of $11, each firm will choose to produce 5 pies where their marginal cost is closest to the marginal revenue without exceeding marginal revenue. Therefore, there will be 40 firms (= 200/5). Each producer will earn total revenue of $55 ($11 x 5), total cost is $39, so profit is $16.

c. The market is not in long-run equilibrium because firms are earning positive economic profit. Firms will want to enter the market.

d. With free entry and exit, each producer will earn zero profit in the long run. Long-run equilibrium will occur when price is equal to minimum average total cost ($7). At that price, 600 pies are demanded. Each firm will only produce 3 pies (the quantity at which, MC is closest to MR without exceeding MR) meaning that there will be 200 pie producers in the market.