

Economics 101
Spring 2001
Section 4 - Hallam
Quiz 10

For questions 1- 9, consider firms using a technology with cost and marginal cost functions:

$$\text{Cost}(q) = 256 + 16q + q^2$$
$$\text{MC}(q) = 16 + 2q$$

1. What is the supply equation for a competitive firm with this technology?
 - a. $q = \frac{1}{2}p - 8$
 - b. $q = 2p - 16$
 - c. $q = 2.046p - 1,000,000$

2. Assume that industry demand is given by $Q^D = 320 - 2p$. If there are 14 identical competitive firms in the industry, what will be the market equilibrium price?
 - a. 48
 - b. 84
 - c. 1,346,891.04

3. What will be the quantity supplied by this competitive industry?
 - a. 224

4. Assume that a monopolist buys out all 14 firms and operates them as one large firm. If the supply equation for this industry with the 14 independent firms is $Q^S = 7p - 112$, what is marginal cost function for this monopolist?
 - a. $MC = 1/10 Q + 115$
 - b. $MC = 1/7 Q - 112$
 - c. $MC = 1/7 Q + 16$
 - d. $MC = 1/7 Q - 16$
 - e. $MC = 1/7 Q - 112$

5. If the market demand function is $Q = 320 - 2p$, what is the marginal revenue function?
 - a. $MR = 320 - 2p$
 - b. $MR = 320 - 4p$
 - c. $MR = 320 - p$
 - d. $MR = 160 - \frac{1}{2}Q$
 - e. $MR = 160 - Q$

6. If the marginal revenue function for the monopolist in #4-#5 is $MR = 160 - Q$, what will be the market equilibrium quantity?
 - a. 106
 - b. 97
 - c. 34
 - d. 126
 - e. 168

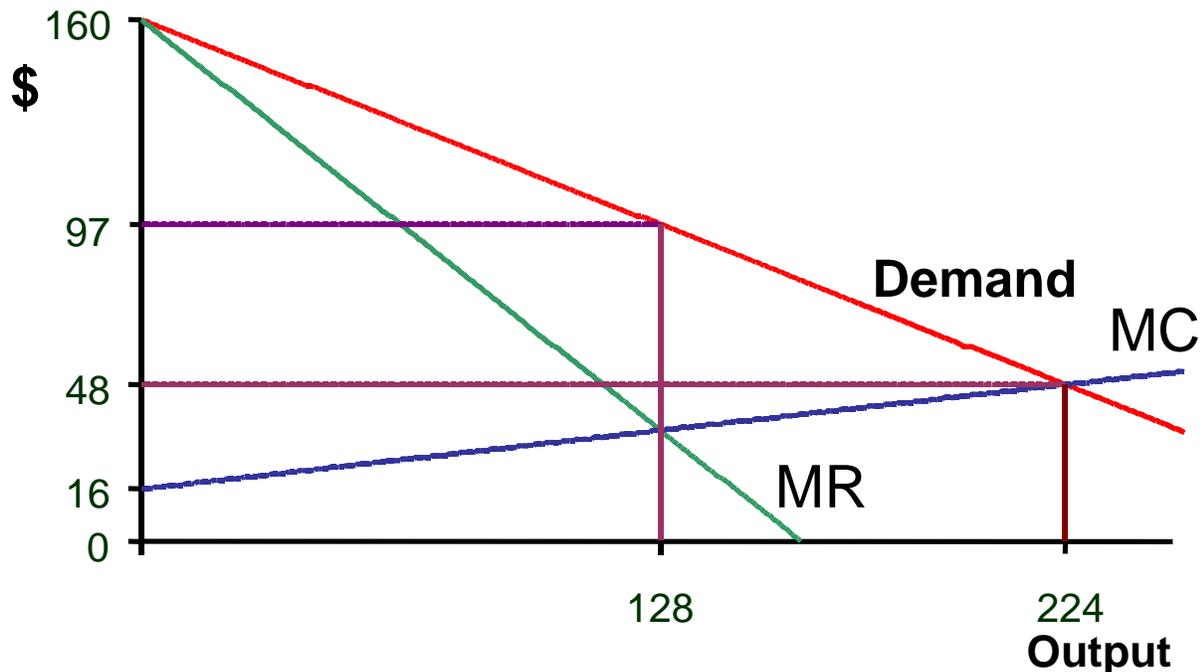
7. Which of the following is true about the monopoly in #4 - #6 as compared to the competitive industry in #1 - #2?
 - a. Equilibrium market price will be higher and equilibrium market quantity will be higher.
 - b. Equilibrium market price will be lower and equilibrium market quantity will be higher.
 - c. Equilibrium market price will be higher and equilibrium market quantity will be lower.
 - d. One cannot tell.

8. A monopolist who can perfectly price discriminate will produce how much in relation to what would be produced in a competitive market?
 - a. Produce less than with competition and charge the same price for each unit sold.
 - b. Produce the same amount as with competition and charge the same price for each unit sold.
 - c. Produce the same amount as with competition but charge different prices for each unit sold.
 - d. Produce less than with competition and charge different prices for each unit sold.

9. A monopolist who can practice perfect first degree price discrimination obtains the maximum revenue for each item sold. This means that with divisible items, the monopolist obtains the entire area bounded by the vertical axis, the demand curve, the quantity where price is equal to marginal cost, and the horizontal axis.

This area is a rectangle with a triangle above it. For a linear inverse demand function ($P = A + BQ$), this area is given by $P^*Q^* + \frac{1}{2}(A - P^*)Q^*$ where Q^* is the amount produced and P^* is obtained by substituting this amount in inverse demand. The following graph may be helpful to you in terms of conceptualizing the problem.

Competition, Monopoly and Price Discrimination

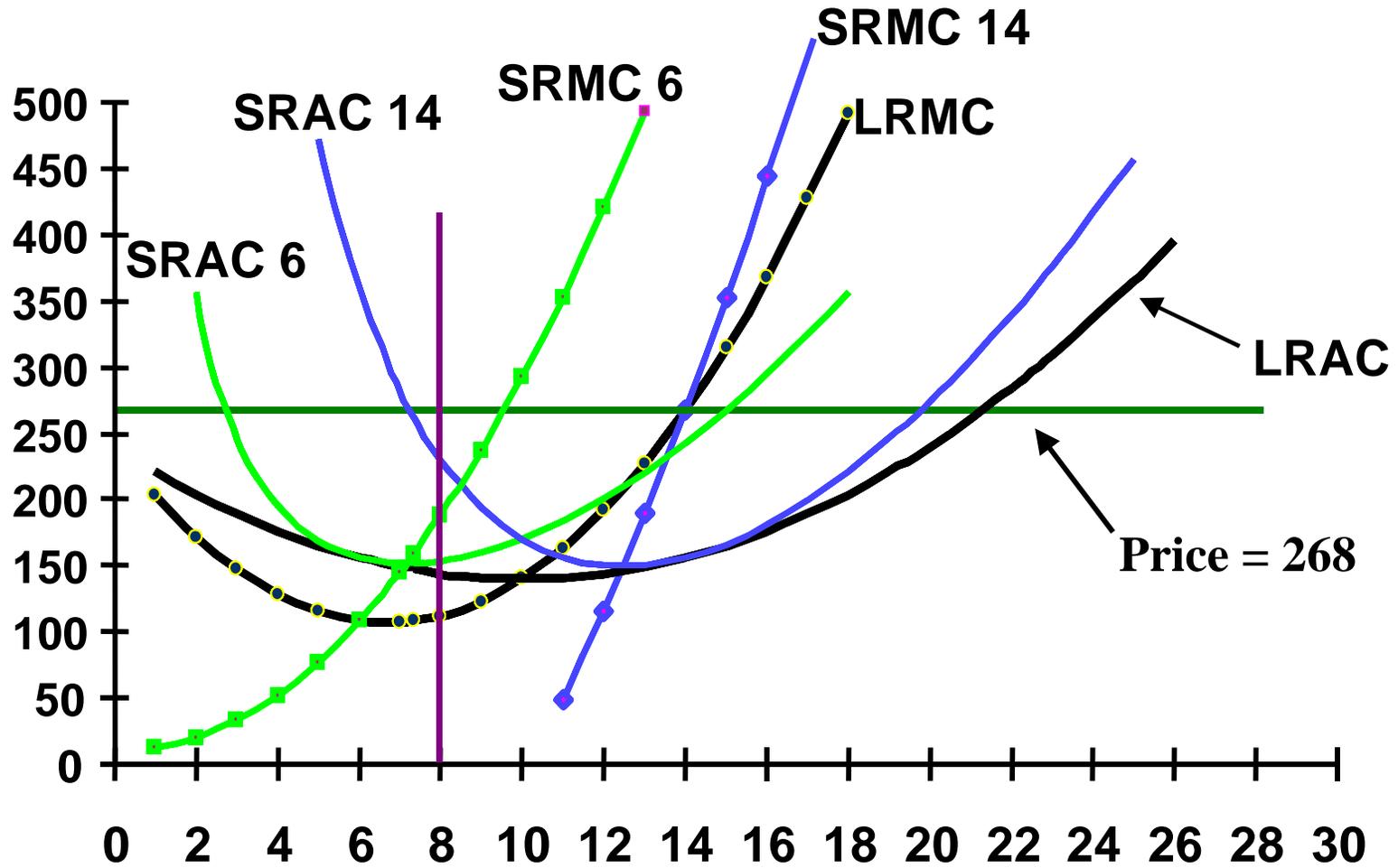


Total industry revenue under competition is \$10,752. How much revenue will the monopolist who practices perfect price discriminating be able to obtain?

- a. \$23,296
- b. \$24,444
- c. \$12,222
- d. \$18,333

10. In which of the following markets is the firm *not* a price setter.
- Monopoly (bad choice)
 - oligopoly (think again)
 - monopolistic competition (keep going)
 - perfect competition (stop)
11. Consider the figure on the next page. It contains a long run average cost curve (LRAC), a long run marginal cost curve (LRMC), and short run average (SRAC) and marginal cost curves (SRMC) for plant sizes designed for 6 and 14 units of output. The price of output is assumed to be fixed at a level of \$268. Which of the following statement is true?
- The firm should produce approximately 9 units of output in the long run.
 - The firm should choose the size 14 plant over the size 6 plant because $LRMC = SRMC$ at price = \$268.
 - The size 14 plant will be the long run equilibrium size in this industry if price stays at \$268 regardless of entry or exit.
 - The long run equilibrium for this industry with free entry and exit will have each firm producing greater than 15 units.
 - Both b and c are correct.
12. If the firm produces 8 units of output, which of the following is true?
- The firm will make money with a price of \$200 regardless of which plant it chooses
 - If price is \$125, the firm should continue to produce 8 units in the long run
 - The firm cannot make money at any price if it produces 8 units of output
 - The firm will make money producing 8 units with a price of \$175 and a plant size of 6
 - Because $SRMC_6$ and $LRMC$ are equal at 6 units of output for the size 6 plant, the firm should build this size plant in the long run

Short and Long Run Equilibrium



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Solutions

1. a
2. a
3. a
4. c
5. e
6. d
7. c
8. c
9. a
10. d
11. e
12. d