

## Monopoly Practice Answers

### Question 1

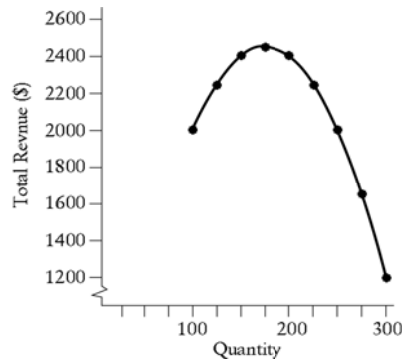
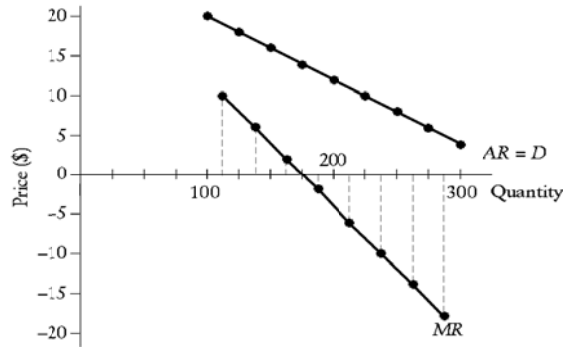
- a. horizontal; downward sloping
- b. marginal revenue; marginal cost; equals; is greater than
- c. greater than
- d. less than

### Question 2

- a. Total revenue (along the demand curve) is equal to price times quantity demanded. Average revenue is equal to total revenue divided by quantity. The completed table is shown below.

Price (\$)	Quantity	Total Revenue (\$)	Average Revenue (\$)	Marginal Revenue (\$)
20	100	$20 \times 100 = 2,000$	$2,000/100 = 20$	
18	125	$18 \times 125 = 2,250$	$2,250/125 = 18$	10
16	150	$16 \times 150 = 2,400$	$2,400/150 = 16$	6
14	175	$14 \times 175 = 2,450$	$2,450/175 = 14$	2
12	200	$12 \times 200 = 2,400$	$2,400/200 = 12$	-2
10	225	$10 \times 225 = 2,250$	$2,250/225 = 10$	-6
8	250	$8 \times 250 = 2,000$	$2,000/250 = 8$	-10
6	275	$6 \times 275 = 1,650$	$1,650/275 = 6$	-14
4	300	$4 \times 300 = 1,200$	$1,200/300 = 4$	-18

- b. Marginal revenue is equal to the *change* in total revenue divided by the *change* in quantity. For any given quantity, marginal revenue is less than price. This is because in order to sell more output, price on all units must fall. Thus the price on the new units is not equal to marginal revenue—we must subtract from this new price the amount that we lose on the previous units by having to reduce their price.
- c. The scale diagram is shown below. Note that the *MR* curve is plotted at the midpoint of the intervals of quantity demanded.
- d. The scale diagram is shown below. When *TR* reaches its maximum, an increase in quantity (and a reduction in price) leads to no change in total revenue. Thus marginal revenue at this point is exactly zero. At larger quantities than this, marginal revenue is negative.



### Question 3

- The profit-maximizing quantity is where  $MR = MC$ , at 400 games per week. The profit-maximizing price is \$60 per game.
- The  $ATC$  at  $Q = 400$  is \$30 per game.
- At the profit-maximizing price and quantity, the profit is given by the rectangle defined by points  $acef$ . The total profit is  $(\$30 \text{ per game}) \times (400 \text{ games per week}) = \$12,000$  per week.

### Question 4

- For any firm, profits are maximized at that level of output where marginal revenue equals marginal cost. In the diagram,  $MR$  equals  $MC$  at output of  $Q_0$ . At this level of output, the monopolist charges the price  $p_4$ .
- Profits per unit are equal to price minus average total cost. Thus the profits are the rectangle defined by the points  $p_2p_4BC$ . Since price exceeds average total cost, the monopolist's profits are positive.
- The deadweight loss of monopoly is the "triangle" defined by three points—B, D, and the point of intersection of the  $MR$  and  $MC$  curves.
- If the industry were instead a perfectly competitive one, equilibrium price and quantity would be determined by the intersection of demand and supply, where the industry supply curve would be given by the summation of the firms'  $MC$  curves. Thus point D would be the competitive equilibrium, with price  $p_3$  and quantity  $Q_2$ .