

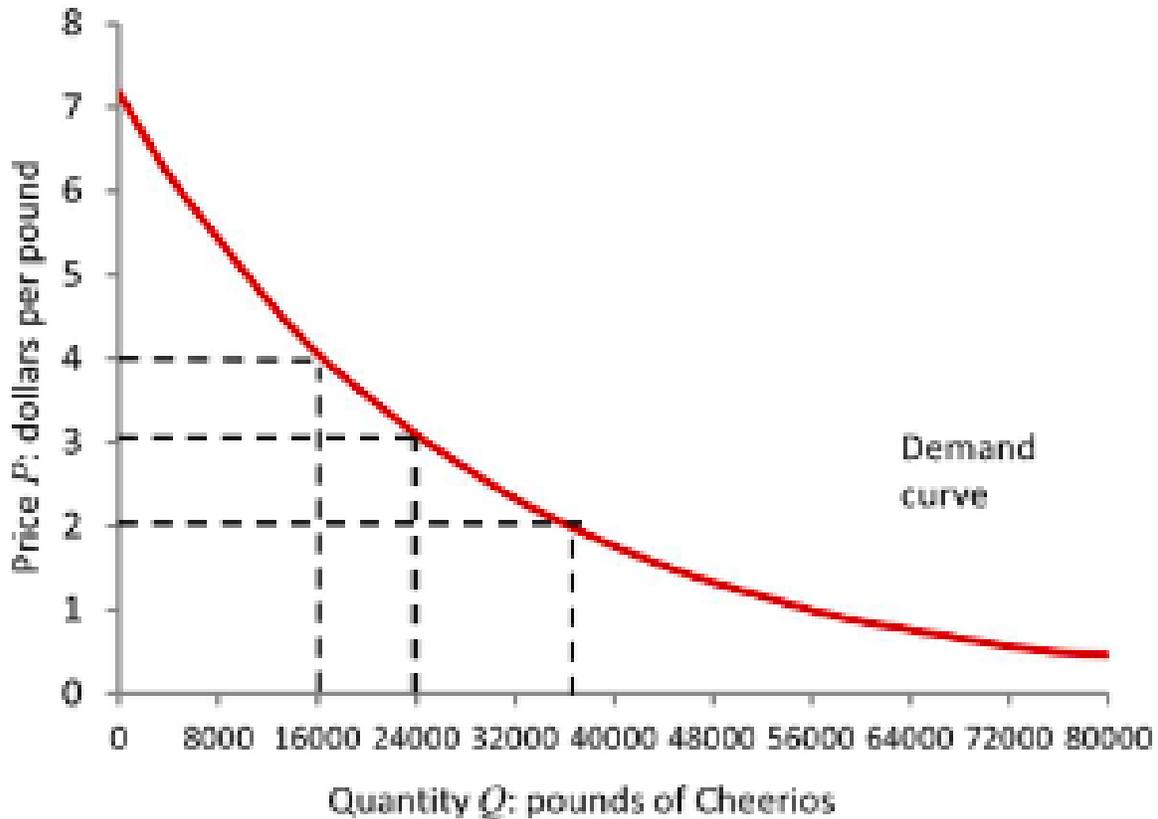
# ECON 2002.01 PROBLEM SET 4

## Unit 7

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- ① (OUP-U7-Q2) Consider the demand curve shown in the figure. Suppose that the unit cost (the cost of producing each pound of Cheerios) is  $C = \$2$ . Based on the demand curve, which of the following statements is correct? \_\_\_\_\_



- (A) The total revenue when  $Q = 24,000$  is \$48,000.
- (B) The total cost when  $P = 4$  is \$64,000.
- (C) The profit when  $P = 3$  is \$24,000.
- (D) The profit when  $Q = 16,000$  is \$64,000.

② (OUP-U7-Q6) Which of the following statements regarding the marginal rate of substitution (MRS) and the marginal rate of transformation (MRT) of a profit-maximising firm is correct? \_\_\_\_\_

- (A) The MRS is how much in price you are willing to give up for an incremental increase in the quantity, holding profits constant.
- (B) The MRT is how much in price the consumers are willing to give up for an incremental increase in the quantity consumed, keeping their utility constant.
- (C) If  $MRT > MRS$  then firms can increase their profit by increasing output.
- (D) The MRT is the slope of the isoprofit curves.

③ (OUP-U7-Q8) The table represents market demand Q for a good at different prices P. The firm's unit cost of production is £70. Based on this information, which of the following is correct?

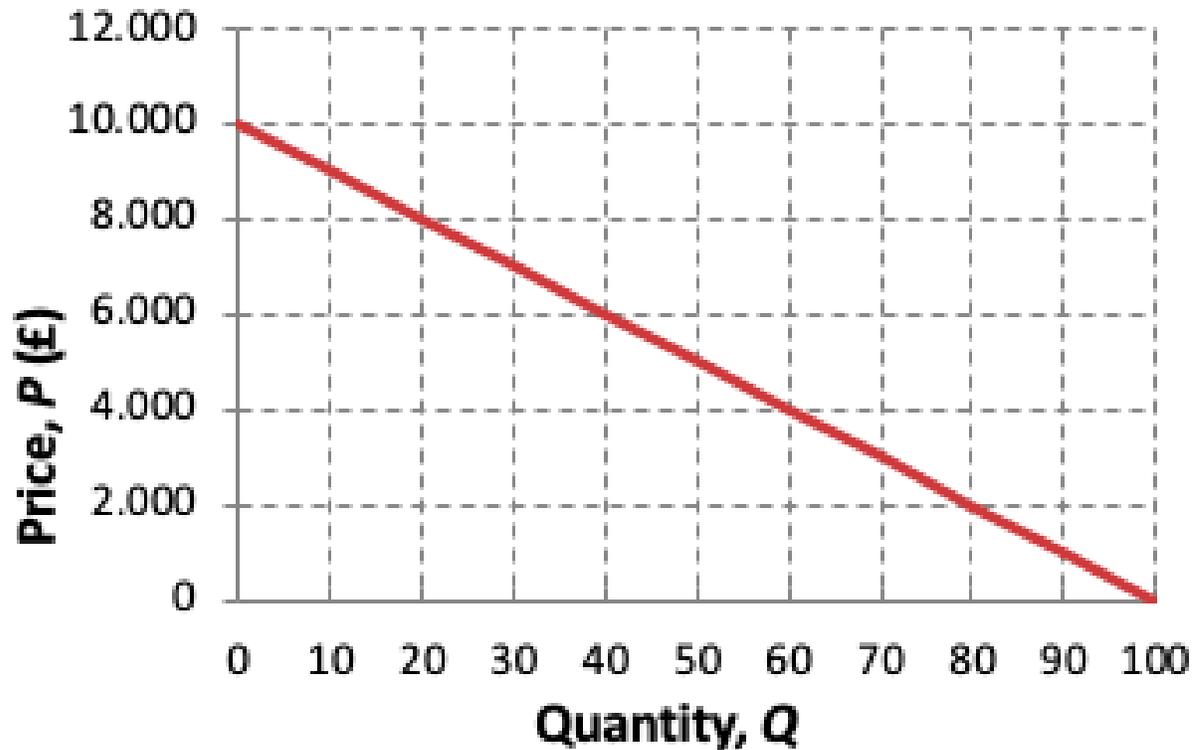
Q	100	200	300	400	500	600	700	800	900	1,000
P	£240	£220	£200	£180	£160	£140	£120	£100	£80	£60

- \_\_\_\_\_
- (A) At  $Q = 200$ , the firm's profit is £44,000.
  - (B) The profit-maximising output is  $Q = 400$ .
  - (C) The maximum profit that can be attained is £45,000.
  - (D) The minimum profit that can be attained is £0.

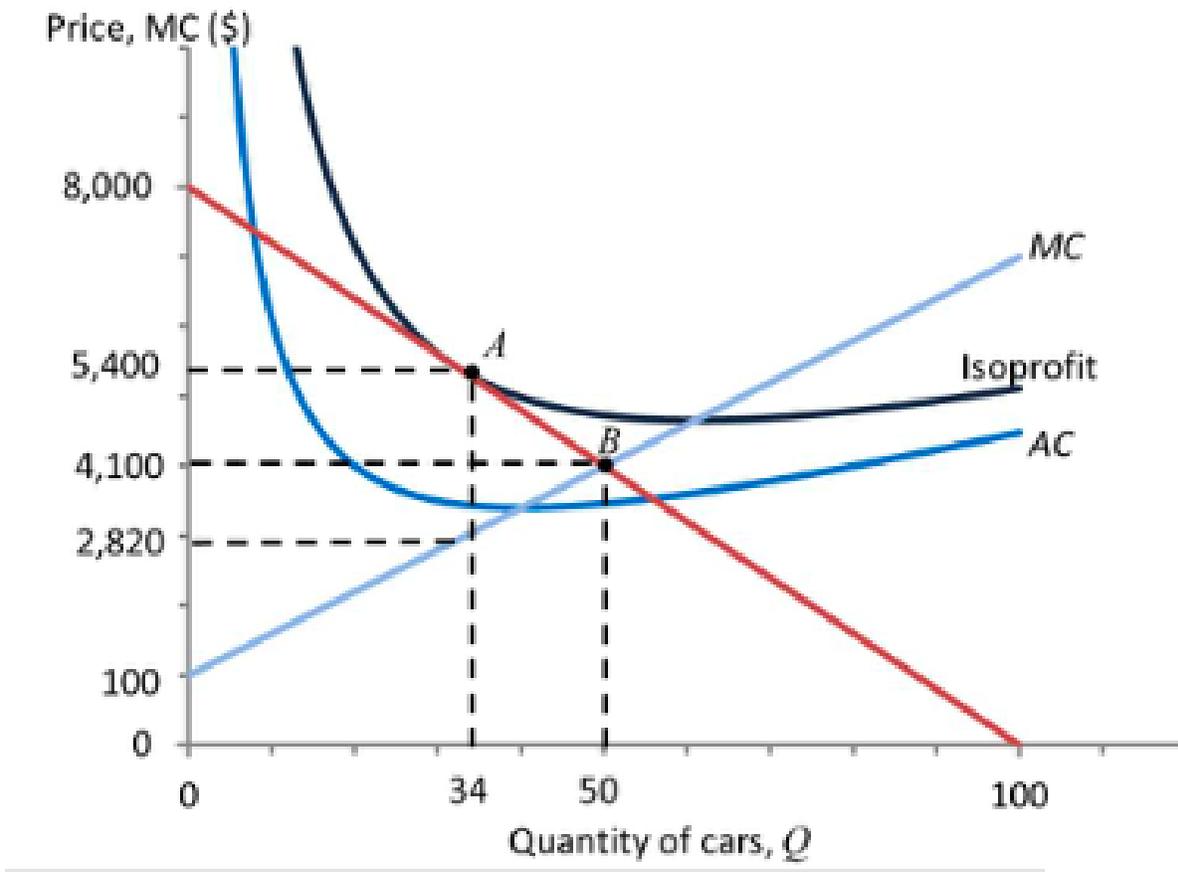
④ (OUP-U7-Q11) Which of the following statements regarding average cost and marginal cost of a firm is correct? \_\_\_\_\_

- (A) Average cost is the slope of the total cost curve.
- (B) Marginal cost is the slope of the average cost curve.
- (C) Marginal cost is always higher than average cost.
- (D) When marginal cost equals average cost, the slope of the average cost curve is zero.

- ⑤ (OUP-U7-Q15) The diagram depicts the demand curve of a product. Assume that there are 100 potential buyers who can choose to purchase one unit each. Based on this graph, which of the following statements is correct? \_\_\_\_\_



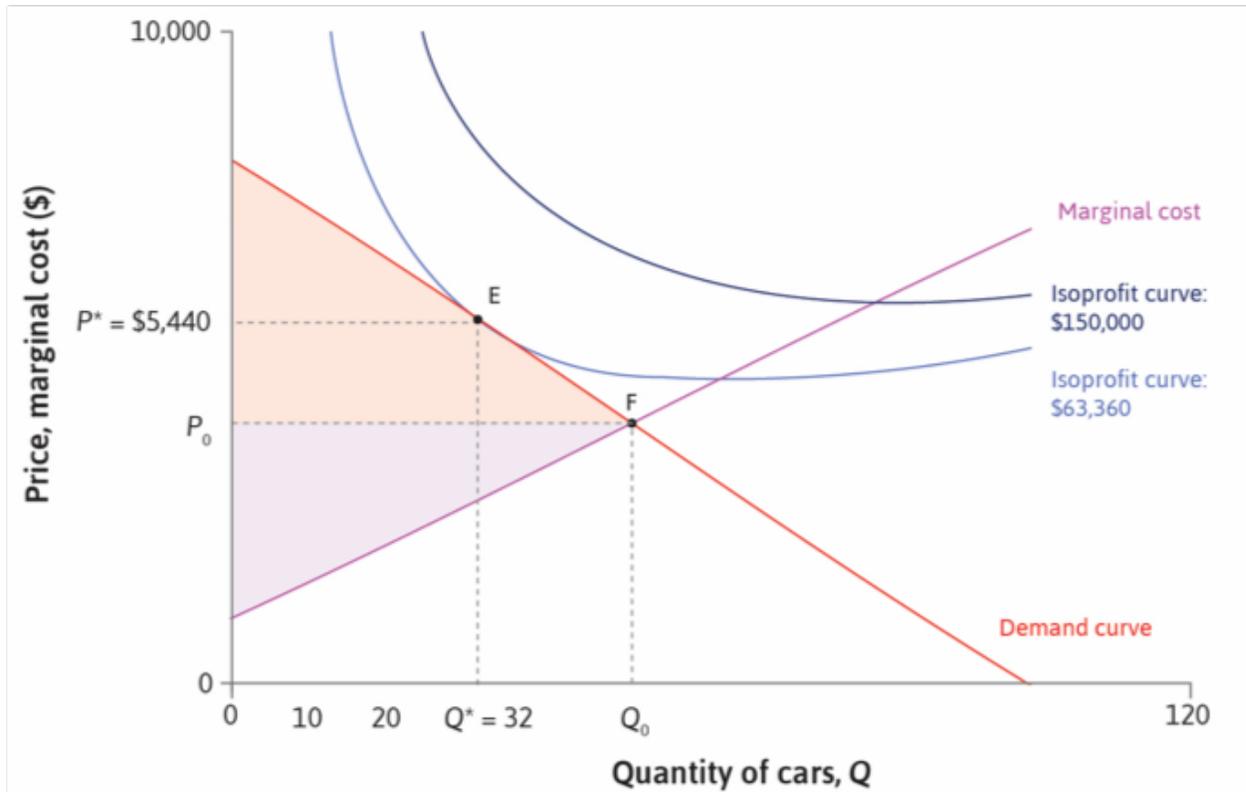
- (A) The diagram demonstrates the Law of Demand.
- (B) At an output of 20, the willingness to pay of all 20 consumers who buy the product is £8,000.
- (C) A quarter of the buyers are not willing to pay more than £2,000 for the product.
- (D) The firm should sell all 100 units in order to maximise its profits.
- ⑥ (OUP-U7-Q22) The figure depicts the demand curve of a firm producing cars, together with its marginal cost, average cost, and isoprofit curves. Based on the figure, which of the following statements is correct? \_\_\_\_\_



- (A) The consumer surplus in the profit-maximising outcome is \$105,300.
- (B) The producer surplus in the Pareto efficient outcome is \$133,960.
- (C) The deadweight loss in the profit-maximising outcome is \$20,640.
- (D) The firm's profit in the Pareto efficient outcome is \$100,000.

⑦ Different from the slide, this question provides a different illustration fo profit maximization problem. The slide is using  $MR = MC$  to illustrate, while this question is treating profit like utility to consumer, and draw the “isoprofit curve”, i.e., a contour plot of 3D profit function.

(TEA-U7-Q5) The following figure depicts a firm's profit-maximising choice at point E, given the market demand curve and the firm's marginal cost curve. You are given that the firm's marginal costs are \$400, \$2,960 and \$4,200 at output levels  $Q = 0$ ,  $Q^* = 32$  (point E) and  $Q_0 = 48$  (point F), respectively. Based on this information, which of the following statements is correct? \_\_\_\_\_



- (A) The consumer surplus at E is \$41,000.
- (B) The producer surplus at E is \$126,720.
- (C) The deadweight loss at E is \$19,840.
- (D) The gains from trade at E are \$120,320.

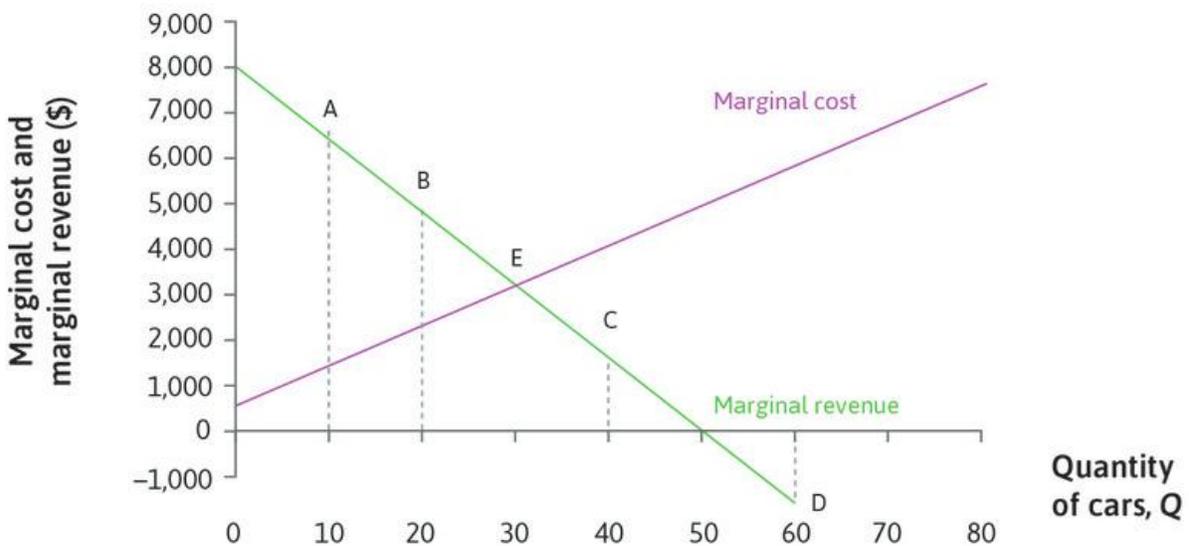
⑧ (UCL-S16-Q4) Demand faced by a monopolist is  $Q = 20 - 0.5P$ . Her marginal cost is 10. Based on this information we can say that: \_\_\_\_\_

- (A) The optimal production of the monopolist is  $Q = 15$ .
- (B) The price charged by the monopolist is equal to her marginal cost.
- (C) The deadweight loss associated with the monopolist's choice of price is less than the product of the difference between her price and marginal cost, multiplied by her optimal quantity.
- (D) The price charged by the monopolist is lower to her marginal cost.

9 (ECO-U7-Q5) Consider a firm with fixed costs of production. Which of the following statements about its average cost (AC) and marginal cost (MC) is correct?

- (A) When  $AC = MC$ , the AC curve has a zero slope.
- (B) When  $AC < MC$ , the MC curve is downward-sloping.
- (C) When  $AC < MC$ , the AC curve is downward-sloping.
- (D) The MC curve cannot be horizontal.

10 (ECO-U7-Q12) This figure shows the marginal cost and marginal revenue curves for Beautiful Cars. Which of the following statements is correct, based on the information shown?



- (A) When  $Q = 40$ , the marginal cost is greater than the marginal revenue so the firm's profit must be negative.
- (B) Revenue is greater when  $Q = 10$  than if  $Q = 20$ .
- (C) The firm would not choose to produce at point E because marginal profit is zero.
- (D) Profit is greater when  $Q = 20$  than when  $Q = 10$ .