Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

to sell one more unit, the monopolist must lower the price on all units it sells; so the extra revenue from the extra unit is less than its price: MR < AR

2.2

a market where one firm can supply the whole market at a lower average cost than two or more firms could; because economies of scale are very large / LRATC is still falling at the market output

2.3

in the short run firms may make abnormal profit; barriers to entry are low, so new firms enter with similar (differentiated) products; each firm's demand falls and becomes more elastic (shifts left); entry continues until demand (AR) is tangent to ATC: P = ATC, normal profit

2.4

$20 - 2Q = 4$, so $Q = \mathbf{8}$; $P = 20 - 8 = \$\mathbf{12}$; profit $= (12 - 4) \times 8 = \$\mathbf{64}$

2.5

competition: P = MC = \$4, so $Q = 16$; welfare loss $= \frac{1}{2} \times (16 - 8) \times (12 - 4) = \$\mathbf{32}$

3.1

(a) if B high: A chooses low (14 > 10); if B low: A chooses low (6 > 4)

(b) low is a dominant strategy for both firms, whatever the other does; so both choose low and earn \$6 million each; but both choosing high would give \$10 million each: a prisoner's dilemma; so they have an incentive to agree to keep fares high (collusion)

(c) any two: each firm can gain by cheating and cutting fares; collusion is illegal and firms risk large fines; new entrants or demand changes upset the agreement

3.2

economies of scale: one firm can run the network at the lowest average cost, avoiding wasteful duplication of track; abnormal profit can fund research and investment, e.g. faster trains (dynamic efficiency); one network can be planned and coordinated more easily

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