

MBA201A, SECTION # 4

- Midterms
- Concerns re Q 3 & Q 5 grades (approach Prof. Borenstein for rest)
 - after 4:00 p today or office hours
- TODAY'S SECTION
 - Exam problems, concepts
 - More key concepts

MIDTERM SOLUTIONS

1. Horatio should compare:

total return on owning medallion (profit from running taxi + expected change in medal's valuation)

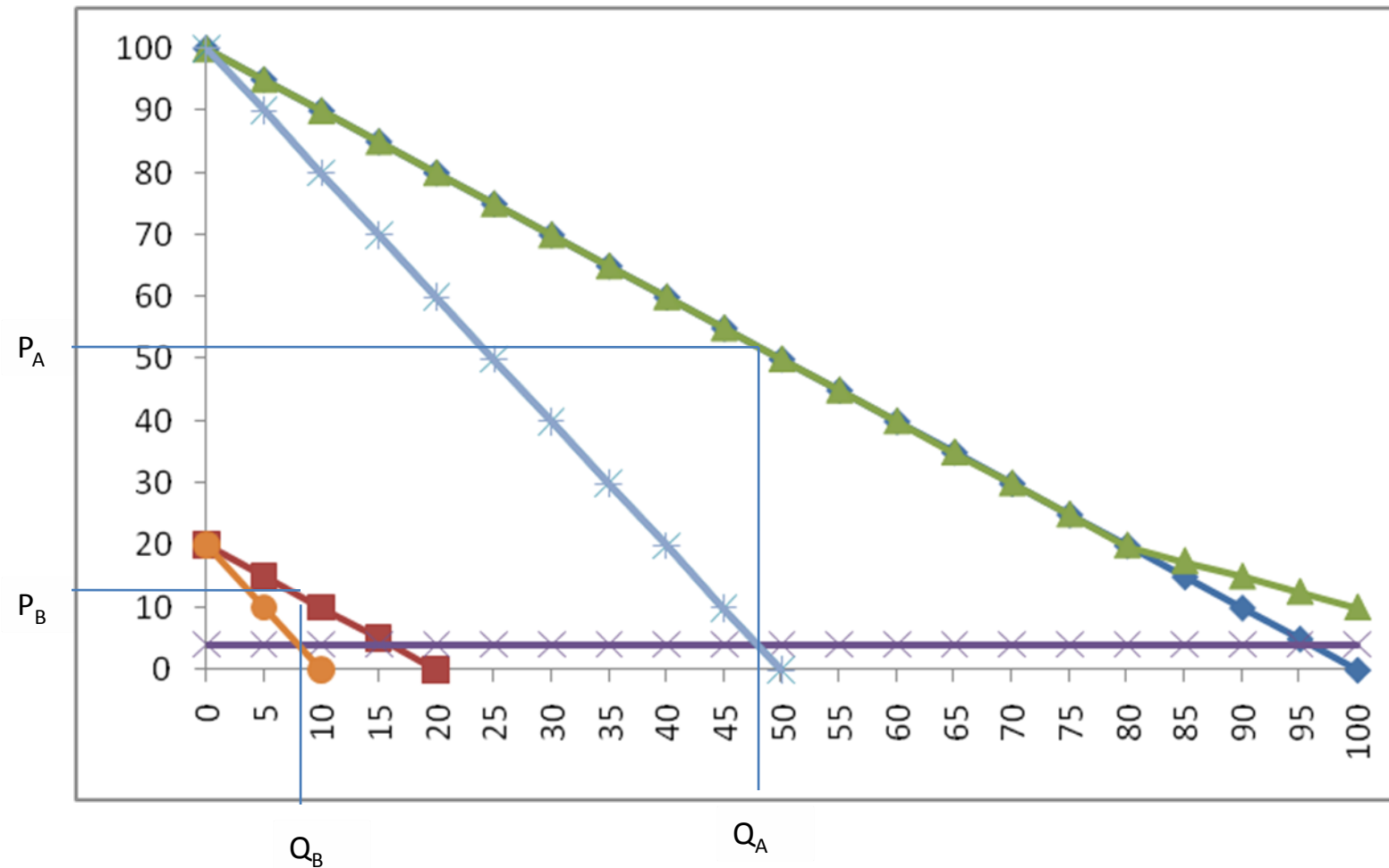
TO

total return from not owning medallion (return on \$600,000 investment + payoff from next best job)

KEY CONCEPT: OPPORTUNITY COST

2. Food cost	\$600
Other direct costs	\$4,800
Chez Panisse license cost	$\$0.2 \cdot (2400/2) = \240
Total direct costs	\$5640
Total revenues	\$7200
Profits would drop by \$1560 if breakfast is stopped, so don't!	

KEY CONCEPT: Ask what are the costs associated & how they vary with activity in question, *i.e.* ASSIGN COSTS BY COST CAUSATION



3. (a) Price discrimination

$P_A = 100 - Q_A$; $P_B = 20 - Q_B$ Marginal cost does not depend on Q , so for each market, set $MR = MC$.

$$Q_A = 48, P_A = 52; Q_B = 8, P_B = 12. \pi = [(48 \cdot 52 + 8 \cdot 12) - (48 \cdot 4 + 8 \cdot 4)] - 200 = \mathbf{2168}$$

(b) No price discrimination

Meet only market A demand. $Q = 48, P = 52; \pi = [(48 \cdot 52) - (48 \cdot 4)] - 200 = \mathbf{2104}$

Consumer surplus for A is unchanged, for B, is reduced by $\frac{1}{2} \cdot 8 \cdot (20 - 12) = \mathbf{32}$

3(c) Price discrimination (back to a), but drop in total quantity

Always set $MR_A = MR_B$

Solve $100 - 2Q_A = 20 - 2Q_B$ and $Q_A + Q_B = 44$

$Q_A = 42, Q_B = 2 \implies P_A = 58, P_B = 18$

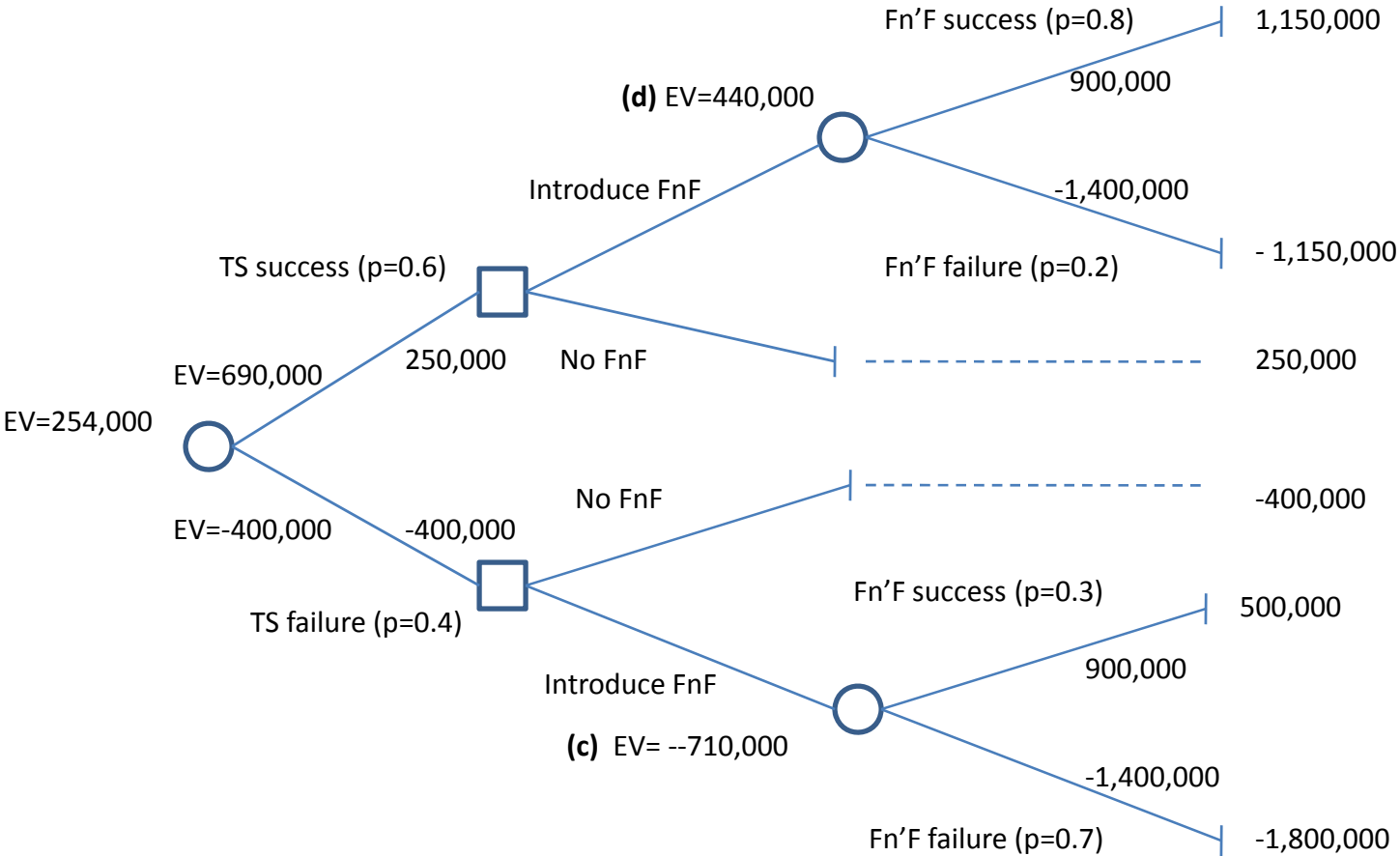
KEY CONCEPTS:

In the short run, firms tries to maximize the difference between total revenues and total costs. At that output,
SLOPE OF COST CURVE (MC) = SLOPE OF REVENUE CURVE (MR)

Third degree price discrimination: Customers are divided into groups for same product (i.e. same cost function). Optimal quantities and prices are such that **MARGINAL REVENUE FROM EACH GROUP IS SAME**

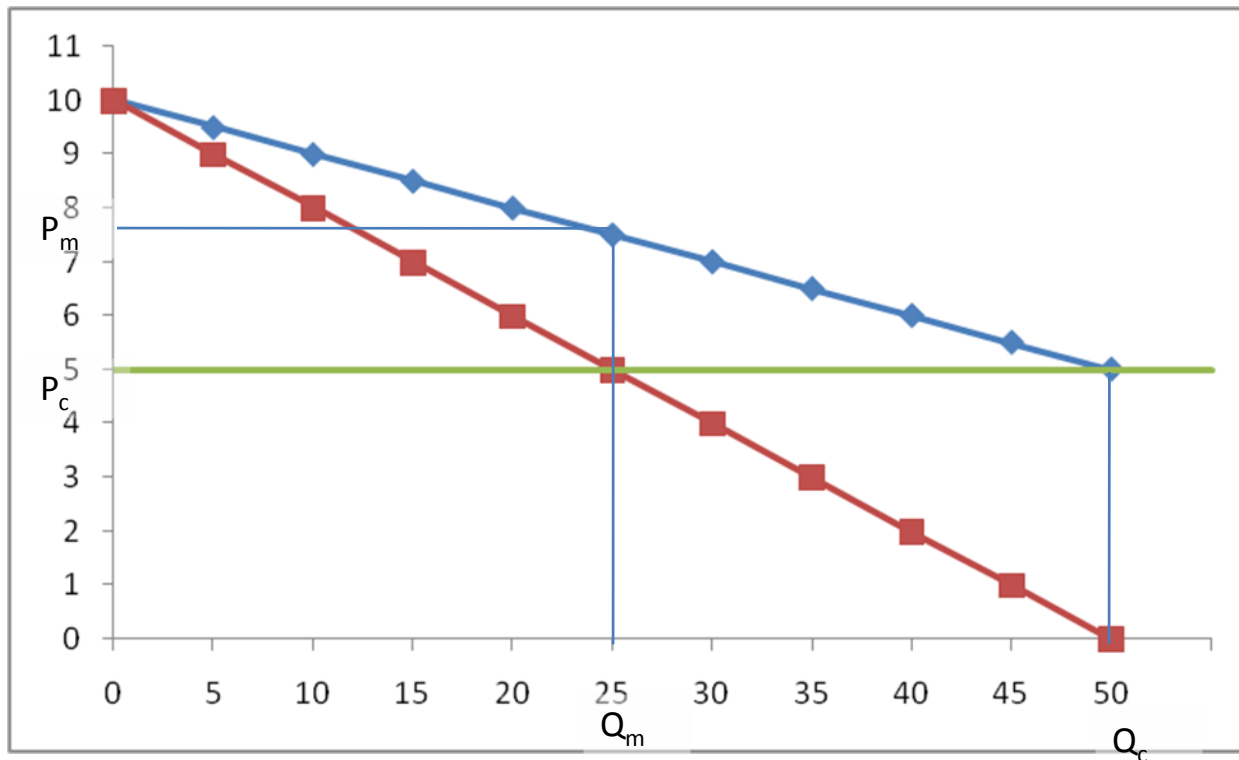
4.

(a) $0.6 \cdot 250,000 + 0.4 \cdot (-400,000) = -10,000$



(d) $0.6 \cdot (250,000 + 440,000) + 0.4 \cdot (-400,000) = 254,000$

KEY CONCEPT: DRAW TREES LEFT TO RIGHT chronologically
 SOLVE TREES RIGHT TO LEFT (OPTIMAL DECN. AT EACH NODE)



5. $Q = 100 - 10P$; $P = 10 - Q/10$

$P \cdot Q = 10Q - Q^2/10$

$MR = 10 - Q/5$

$MC = 5$

(a) $MC = MR \implies Q^* = 25$; $P^* = 7.5$
 $\pi = 25 \cdot (7.5 - 5) = 62.5$ / customer
 Total $\pi = 6250$

(b) $P^* = MC = 5$ ($Q = 50$)
 Sign-up fee = Consumer surplus
 $= \frac{1}{2} \cdot 50 \cdot 5 = 125$.
 Total $\pi = 12,500$

(c) To stay in business, Packwood is willing to pay up to the maximum he can earn with his monopoly = 12,500 (profits under competition = 0)

(d) \$20 set-up (or fixed) cost per customer. Does not affect individual Q or MC. So analysis in (a) still holds. Total costs however go up by \$2000, & Total π is reduced to 4250.

(e) Total costs go up by \$2000, & Total π is reduced to 10,500.

KEY CONCEPT: 2-PART TARIFF WITH SINGLE CUSTOMER: FIRM MAXIMIZES PROFIT BY SETTING USAGE FEE EQUAL TO MC & ENTRY FEE THAT EXTRACTS ENTIRE CONSUMER SURPLUS.

USAGE IS THE Q IN THE DEMAND CURVE OF AN INDIVIDUAL CUSTOMER. FOR SETTING FEES, THINK ABOUT WHETHER GIVEN COSTS VARY WITH INDIVIDUAL Q.

SOME IMPORTANT CONCEPTS

- In the short run, should firm shut down if $AC > P$?
 - Not if revenues exceed average costs (i.e. $P > AVC$)
 - In the short run, not all inputs are variable.
- A firm's marginal cost curve intersects its average cost curve at the minimum point of SAC
- In the long run competitive equilibrium
 - All firms in industry are maximizing profits
 - No firm in industry has incentive to enter or exit (all firms are earning zero economic profits)
 - Price is such that quantity supplied by industry = quantity demanded by consumers
- In long run competitive equilibrium, $P = MR = MC = \min LAC$