Micro Economics Analysis

1. A movie monopolist sells to college students and other adults. The demand function for students is

$$Q_S^d = 800 - 100p$$

and the demand function for other adults is

~~$Q_A^d = 3800 - 100p$~~ $Q_A^d = 3800 - 100p$

The marginal cost is $2 per ticket.

Instructions: Round your answers to 2 decimal places.

a. What is the effect of price discrimination on consumer and aggregate surplus?

$CS = \$$ ____ .

$AS = \$$ ____ .

b. What is the effect without price discrimination on consumer and aggregate surplus?

$CS = \$$ ____ .

$AS = \$$ ____ .

2. Air Shangrila sells to both tourist and business travelers on its single route. Tourists always stay over on Saturday nights, while business travelers never do. The weekly demand function of tourists is

$$Q_T^d = 6000 - 10P$$

and the weekly demand function of business travelers is

$$Q_B^d = 1{,}000 - 0.5P.$$

Let the marginal cost of a ticket be $150. Suppose Air Shangrila has scheduled only 1,379 seats per week on its route.

Instructions: Round your quantities to the nearest whole number and prices to 2 decimal places.

a. How many of those seats should it sell to tourists and business travelers, respectively?

$Q_{tourist}$ = ⌈ ⌉ seats.

$Q_{business}$ = ⌈ ⌉ seats.

b. What will its prices be?

$P_{tourist}$ = $⌈ ⌉ .

$P_{business}$ = $⌈ ⌉ .

3.A movie monopolist sells to college students and other adults. The demand function for students is

$$Q_S^d = 1,400 - 50P$$

and the demand function for other adults is

$$Q_A^d = 2,200 - 50P$$

The marginal cost is \$3 per ticket (instead of \$2 per ticket, as in the Worked-Out Problem).

Instructions: Round your answers to 2 decimal places.

a. What is the effect of price discrimination on consumer and aggregate surplus?

$CS = \$$ ____ .

$AS = \$$ ____ .

b. What is the effect without price discrimination on consumer and aggregate surplus?

$CS = \$$ ____ .

$AS = \$$ ____ .

4.A movie monopolist sells to college students and other adults, as in Worked-Out Problem 18.2 (page 635). The demand function for students is

$$Q_S^d = 800 - 100P$$

and the demand function for other adults is

$$Q_A^d = 3,500 - 100P$$

Marginal cost is $2 per ticket.

Instructions: Round your answers to 2 decimal places.

a. What prices will the monopolist set when she can discriminate? How will discrimination affect the monopolist's profit?

$P_{student}$ = $\boxed{}$ per ticket.

P_{adult} = $\boxed{}$ per ticket.

Profit = $\boxed{}$.

b. What prices will the monopolist set when she cannot discriminate? How will it affect her profit?

$P_{everyone}$ = $\boxed{}$ per ticket.

Profit = $\boxed{}$.

5.Air Shangrila sells to both tourist and business travelers on its single route. Tourists always stay over on Saturday nights, while business travelers never do. The weekly demand function of tourists is

$$Q_T^d = 6{,}000 - 10P$$

and the weekly demand function of business travelers is

$$Q_B^d = 4{,}000 - 4P.$$

The marginal cost of a ticket is $300.

Instructions: Round your answers to 2 decimal places as needed. For elasticities, include a negative sign if necessary.

a. What prices should Air Shangrila set for its tourist ticket and its business ticket?

$P_{tourist}$ = $\$$ ____ .

$P_{business}$ = $\$$ ____ .

b. If the government passes a law that says all tickets must cost the same amount, what price will Air Shangrila set? (Assume Air Shangrila sells to both types of consumers. That is, profit from selling to both types of consumers will be greater than profit without price discrimination where price is set so high that only one group demands a positive quantity.)

P = $\$$ ____ .

c. What would be the elasticities of demand for the two groups at that price?

$E^d_{tourist}$ = ____ .

$E^d_{business}$ = ____ .

6. Clearvoice, the wireless telephone monopolist in Worked-Out Problem 18.1, has 100 consumers, each of whom has a monthly demand curve for wireless minutes of

where P is the per-minute price in dollars. The marginal cost of providing wireless service is $0.20 per minute.

Instructions: Round your answers to 2 decimal places.

a. Suppose the wireless telephone monopolist charges $0.20 per minute. How large a fixed fee can it charge and still persuade consumers to buy?

$ 361 .

b. What is its profit from each consumer?

$ 361 .

c. What is its total profit?

$ 36100 .

d. What would be its total profit with a per-minute charge of $0.30?

$ 12117 .

e. What would be its total profit with a per-minute charge of $0.40?

$ 14400 .

f. What would be its total profit with a per-minute charge of $0.50?

$ 19296 .

7. A movie monopolist sells to college students and other adults. The demand function for students is

$$Q_S^d = 1,480 - 100P$$

and the demand function for other adults is

Cost is

$$C(Q) = 10Q + 0.05Q^2 \text{ per ticket}$$

where $Q = Q_S + Q_A$.

Instructions: Round your answers to 2 decimal places.

a. What prices will the monopolist set when she can discriminate?

$P_{student}$ = $\$$ _____ per ticket.

P_{adult} = $\$$ _____ per ticket.

Profit = $\$$ _____ .

b. What if demand for adults increases to

$P_{student}$ = $\$$ _____ per ticket.

P_{adult} = $\$$ _____ per ticket.

Profit = $\$$ _____ .

c. When adult demand increases, the adult price:

- ○ does not change.
- ○ decreases.
- ◉ increases.