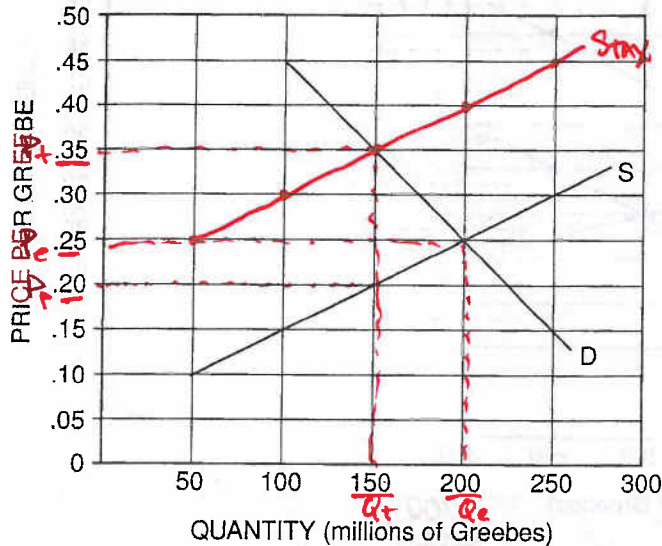


Part A

EXCISE TAX PRACTICENAME: KEY

Figure 21.3

PER: _____

Relatively Inelastic Demand for Greebes as Compared with D_1 on Figure 21.4

- On Figure 21.3 above, the equilibrium quantity of Greebes is 200 million Greebes.
- On Figure 21.3, the equilibrium price of Greebes is \$0.25 per Greebe.
- Buyers are spending a total of \$50 million on Greebes. ($.25 \times 200 = \50)
- Sellers are receiving a total of \$50 million from selling Greebes.
- If an excise tax of \$0.15 for each Greebe sold is levied on the sellers of Greebes, the equilibrium price paid by buyers (P_B) will differ from the equilibrium price received by sellers (P_S) by the amount of the tax. Add the new supply curve incorporating the tax to the graph and indicate P_B and P_S . This \$0.15 goes to the government. Under these circumstances:
 - The new equilibrium quantity of Greebes would be 150 million.
 - The new equilibrium price paid by buyers would be \$0.35 per Greebe.
 - The new equilibrium price received by sellers (after tax) would be \$0.20 per Greebe.
 - Buyers would spend a total of \$52.5 million on Greebes. ($P_B \times 150 = \$0.35 \times 150$)
 - Sellers would receive a total of \$30 million (after tax) from selling Greebes. ($P_S \times 150 = \$0.20 \times 150$)
 - The government revenue from this tax would be \$22.5 million. $TAX \times 150$ ($\$0.15 \times 150$)
 - \$15 million of this revenue would be paid by buyers in the form of higher prices. $(P_B - P_e) \times 150 = (\$0.35 - \$0.25) \times 150 = \0.10×150
 - \$7.5 million of this revenue would be paid by sellers in the form of reduced income. $(P_e - P_s) \times 150 = (\$0.25 - \$0.20) \times 150 = \0.05×150
 - As a result of the tax, buyers will buy a smaller quantity than before the tax. If so, the sellers would also have a loss of revenue that is not collected by the government. In this case, the uncollected revenue loss would be equal to \$12.5 million. $(200 - 150) \times \$0.25 = 50 \times \$0.25 = \$12.5$

Part B

Figure 21.4
Relatively Elastic Demand for Greebes as Compared with D in Figure 21.3



6. On Figure 21.4, the equilibrium quantity of Greebes is 200 million.
7. On Figure 21.4, the equilibrium price of Greebes is \$0.25 per Greebe.
8. Buyers are spending a total of \$50 million on Greebes.
9. Sellers are receiving a total of \$50 million from selling Greebes.
10. If an excise tax of \$0.15 for each Greebe sold is levied on the sellers of Greebes, the equilibrium price paid by buyers (P_B) will differ from the equilibrium price received by sellers (P_S) by the amount of the tax. This \$0.15 goes to the government. Add the new supply curve incorporating the tax to the graph, and indicate P_B and P_S . Under these circumstances:
 - (A) The new equilibrium quantity of Greebes would be 100 million.
 - (B) The new equilibrium price paid by buyers would be \$0.30 per Greebe.
 - (C) The new equilibrium price received by sellers (after tax) would be \$0.15 per Greebe.
 - (D) Buyers would spend a total of \$30 million on Greebes.
 - (E) Sellers would receive a total of \$15 million (after tax) from selling Greebes.
 - (F) The government revenue from this tax would be \$15 million.
 - (G) \$5 million of this revenue would be paid by buyers in the form of higher prices.
 - (H) \$10 million of this revenue would be paid by sellers in the form of reduced income.
 - (I) As a result of the tax, buyers will buy a smaller quantity than before the tax. If so, the sellers would also have a loss of revenue that is not collected by the government. In this case, the *uncollected revenue loss* would be equal to \$25 million.

Part B

If Dolores has a given budget and must choose between polo shirts and steaks, she will make her choice so that the marginal utility per dollar spent of each good is the same. Using the data in Figure 11.1 and assuming that the price of both goods is \$30, let's see what happens if Dolores spends her entire budget of \$150 dollars and buys five polo shirts and no steaks. Her marginal utility from the last polo shirt is 15 and from the first steak is 20. So if she buys only four polo shirts and one steak, she loses a utility of 15 on the polo shirt but gains utility of 20 on the steak. Dolores is better off.

Suppose Dolores spends her \$150 and buys four polo shirts and one steak. Her marginal utility on the last polo shirt is 20 and on the steak is also 20. She will not want to switch. To buy the next steak gives her an increase in utility of 16, but she would have to give up a polo shirt, which would reduce her utility by 20. Conversely, to buy an additional polo shirt would increase her utility by 15, but she would lose 20 from giving up the steak. Dolores should not change her purchases.

If the prices of the two goods differ, then Dolores will adjust her consumption until the marginal utilities of the two goods, *per dollar spent*, are equal. Or, stated in another way,

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

4. Use the information in Figure 11.3 to analyze Frank's choice between gasoline and food.

Frank has an income of \$130, the price of gasoline is \$10 per gallon and the price of food is \$20. Complete the table.

Figure 11.3

Gasoline	MU _g	MU _g / P _g	Food	MU _f	MU _f / P _f
1	60	6.0	1	115	5.75
2	55	5.5	2	105	5.25
3	51	5.1	3	98	4.90
4	48	4.8	4	94	4.70
5	47	4.7	5	92	4.6
6	46	4.6	6	90	4.5

- (A) Does the combination G = 1 and F = 6 satisfy the income constraint? YES
 Can Frank purchase this combination of goods with his income? YES
- (B) Is this the utility maximizing combination of goods? NO
- (C) In which direction would Frank like to reallocate his purchases?
LESS FOOD & MORE GAS
- (D) What is Frank's utility maximizing combination of goods, subject to the income constraint of \$130?
5 GAS & 4 FOOD (4.7 = 4.7) or $\frac{MU_g}{P_g} = \frac{MU_f}{P_f}$

Part C

Assume you go into a store to buy a bottle of water. The bottle of water costs you \$1. You would have been willing to pay \$2. The difference between what you paid and what you would have been willing to pay is *consumer surplus*.

We can calculate Dolores' consumer surplus from buying steak by looking at her demand curve. Look at her marginal utility curve for steak: At three steaks, Dolores is willing to pay \$15 for one more; at four steaks, she is willing to pay \$14. Dolores will buy steak until the point where the price is equal to the marginal utility of the last steak. Dolores will pay the same price for each of the steaks she buys. Thus, if the price of steak is \$14, she will buy four steaks; the marginal utility of the fourth steak is \$14. Dolores would have been willing to pay more for the earlier steaks. She has gotten a bargain buying four steaks at \$14 apiece for a total of \$56. She would have been willing to pay \$20 for the first, \$16 for the second, \$15 for the third, and \$14 for the fourth, for a total of \$65. The consumer surplus is the difference between what she was willing to pay (\$65) and what she paid (\$56). Her consumer surplus is \$9.

Consider the following information on Joel's total utility for CD purchases, and then underline the correct answer for each question that follows.



Figure 11.4
Total Utility of CDs

Number of CDs	Total Utility	MU	MC
1	\$ 25	25	\$11
2	\$ 45	20	11
3	\$ 63	18	11
4	\$ 78	15	11
5	\$ 90	12	11
6	\$100	10	11
7	\$106	6	11
8	\$110	4	11

- What marginal utility is associated with the purchase of the third CD?
 (A) \$18 (B) \$21 (C) \$45 (D) \$63
- What is Joel's consumer surplus if he purchases three CDs at \$11 apiece?
 (A) \$30 (B) \$33 (C) \$63 (D) \$96
- What would happen to Joel's consumer surplus if he purchased an additional CD at \$11?
 (A) Consumer surplus declines by \$11.
 (B) Consumer surplus increases by \$11.
 (C) Consumer surplus increases by \$15.
 (D) Consumer surplus increases by \$4.
TU = \$78, P = \$44, CS = \$34
- How many CDs should Joel buy when they cost \$11 apiece?
 (A) 0 (B) 3 (C) 5 (D) 7
- What is Joel's consumer surplus at the optimal number of CD purchases?
 (A) \$35 (B) \$55 (C) \$79 (D) \$100
- If CDs go on sale and their price drops to \$8, how many CDs do you expect Joel to buy?
 (A) 5 (B) 6 (C) 7 (D) 8
- Why is consumer surplus important?
MARKETS AUTOMATICALLY CREATE CONSUMER SURPLUS SO CONSUMERS GET PRODUCTS FOR LESS THAN THEY ARE WILLING TO PAY.