

Excise Taxes

Suppose Figures 1 and 2 show the current supply of “Greebes”.

Figure 1
Table of Current Supply Schedule of Greebes

Quantity (millions)	Supply Price Before Tax (\$ per Greebe)	Supply Price After Tax (\$ per Greebe)
50	\$.10	
100	.15	
150	.20	
200	.25	
250	.30	
300	.35	

Figure 2
Current Supply Schedule of Greebes



Now, suppose that (to raise revenue for higher education) the government enacts an excise (sales) tax of \$0.15 per Greebe. *This tax will result in a new supply curve for Greebes.* To determine where this new supply curve lies, reason as follows: If before the tax, firms were willing to supply 50 million Greebes at a price of \$0.10, they would now be willing to supply 50 million Greebes only if the price were \$0.25. (Remember: \$0.15 of the price of each Greebe sold is now going to go to the government. So, if the price is \$0.25 and the government is getting \$0.15 of this price, then the seller is receiving the remaining \$0.10.)

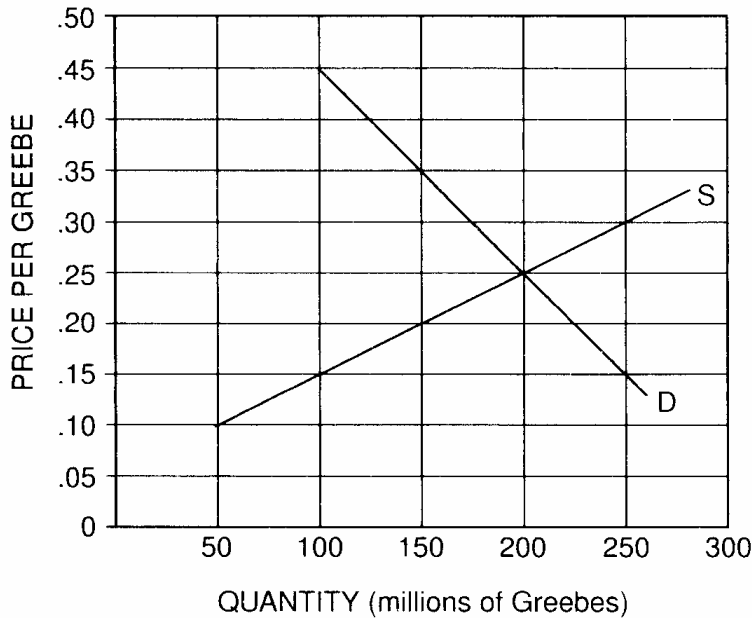
Fill in the blank spaces in the table, and draw in the new supply curve that results from the tax. Label the new supply curve S_T .

What will be the result of this excise (sales) tax on the equilibrium quantity of Greebes? The equilibrium price paid by buyers (P_B)? The equilibrium price received by sellers (P_S)? The revenue received by the government? The income, or revenue, received by sellers after the tax?

The answers to these important questions will depend on the nature of the demand for Greebes. The next section of this activity will help you determine the effects of a \$0.15 excise tax on Greebes under four different demand conditions.

Part A: Relatively Inelastic Demand

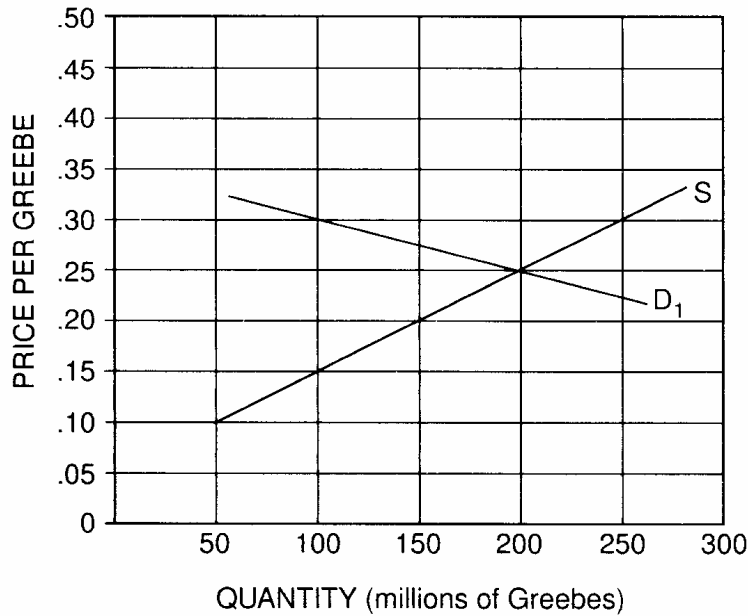
Figure 3
Relatively Inelastic Demand for Greebes as Compared with D_1



- On Figure 3 above, the equilibrium quantity of Greebes is _____ million Greebes.
- On Figure 3, the equilibrium price of Greebes is _____ per Greebe.
- Buyers are spending a total of _____ million on Greebes.
- Sellers are receiving a total of _____ 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 _____ million.
 - The new equilibrium price paid by buyers would be _____ per Greebe.
 - The new equilibrium price received by sellers (after tax) would be _____ per Greebe.
 - Buyers would spend a total of _____ million on Greebes.
 - Sellers would receive a total of _____ million (after tax) from selling Greebes.
 - The government revenue from this tax would be _____ million.
 - _____ million of this revenue would be paid by buyers in the form of higher prices.
 - _____ million of this revenue would be paid by sellers in the form of reduced income.
 - 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 _____ million.

Part B: Relatively Elastic Demand

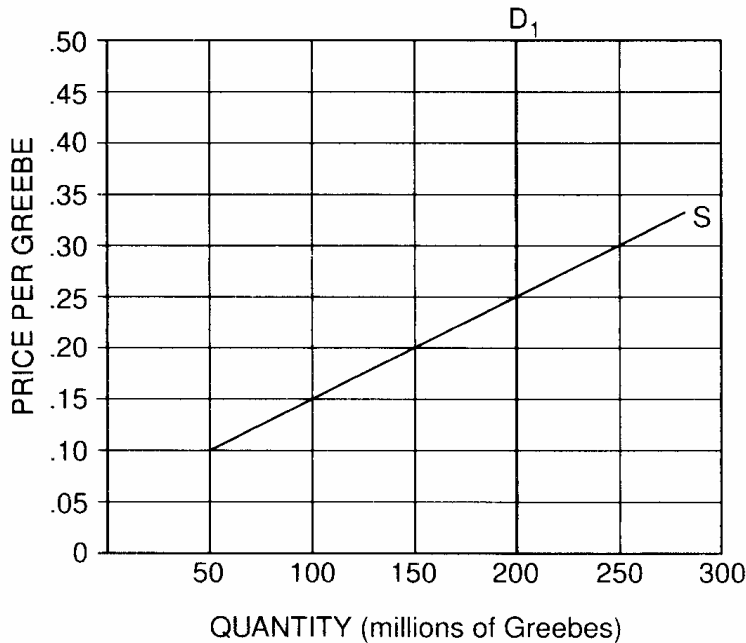
Figure 4
Relatively Elastic Demand for Greebes as Compared with



6. On Figure 4, the equilibrium quantity of Greebes is _____ million.
7. On Figure 4, the equilibrium price of Greebes is _____ per Greebe.
8. Buyers are spending a total of _____ million on Greebes.
9. Sellers are receiving a total of _____ 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 _____ million.
 - (B) The new equilibrium price paid by buyers would be _____ per Greebe.
 - (C) The new equilibrium price received by sellers (after tax) would be _____ per Greebe.
 - (D) Buyers would spend a total of _____ million on Greebes.
 - (E) Sellers would receive a total of _____ million (after tax) from selling Greebes.
 - (F) The government revenue from this tax would be _____ million.
 - (G) _____ million of this revenue would be paid by buyers in the form of higher prices.
 - (H) _____ 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 _____ million.

Part C: Perfectly Inelastic Demand

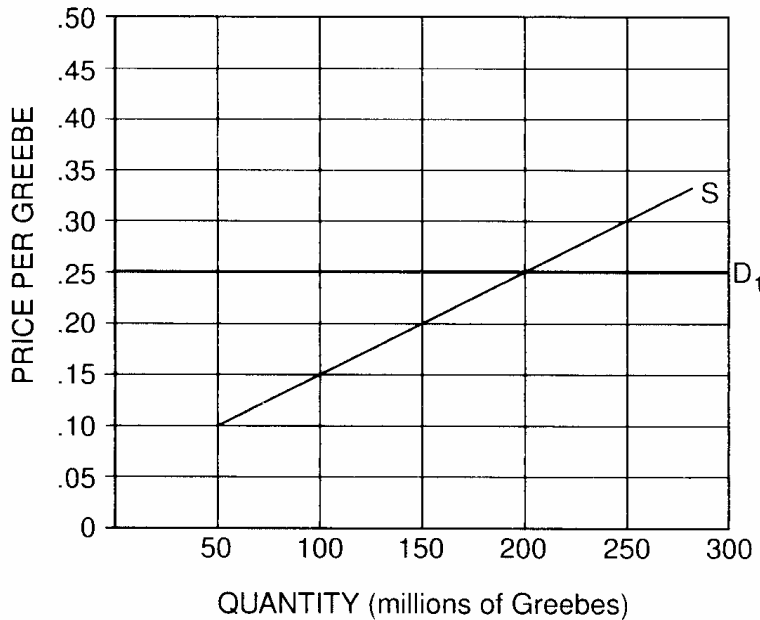
Figure 5
Perfectly Inelastic Demand for Greebes



11. On Figure 5, the equilibrium quantity of Greebes is _____ million.
12. On Figure 5, the equilibrium price of Greebes is _____ per Greebe.
13. Buyers are spending a total of _____ million on Greebes.
14. Sellers are receiving a total of _____ million from selling Greebes.
15. 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 _____ million.
 - (B) The new equilibrium price paid by buyers would be _____ per Greebe.
 - (C) The new equilibrium price received by sellers (after tax) would be _____ per Greebe.
 - (D) Buyers would spend a total of _____ million on Greebes.
 - (E) Sellers would receive a total of _____ million (after tax) from selling Greebes.
 - (F) The government revenue from this tax would be _____ million.
 - (G) _____ million of this revenue would be paid by buyers in the form of higher prices.
 - (H) _____ 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 _____ million.

Part D: Perfectly Elastic Demand

Figure 6
Perfectly Elastic Demand for Greebes



16. On Figure 21.6, the equilibrium quantity of Greebes is _____ million.
17. On Figure 21.6, the equilibrium price of Greebes is _____ per Greebe.
18. Buyers are spending a total of _____ million on Greebes.
19. Sellers are receiving a total of _____ million from selling Greebes.
20. 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 _____ million.
 - (B) The new equilibrium price paid by buyers would be _____ per Greebe.
 - (C) The new equilibrium price received by sellers (after tax) would be _____ per Greebe.
 - (D) Buyers would spend a total of _____ million on Greebes.
 - (E) Sellers would receive a total of _____ million (after tax) from selling Greebes.
 - (F) The government revenue from this tax would be _____ million.
 - (G) _____ million of this revenue would be paid by buyers in the form of higher prices.
 - (H) _____ 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 _____ million.

Part E: Questions

21. A famous Supreme Court justice once said, “The power to tax is the power to destroy” sellers. This is more likely to be true the more the demand for the product taxed is relatively (*elastic / inelastic*).
22. If you were a government revenue agent interested in getting the most tax revenue possible, you would suggest putting excise taxes on goods whose demand is (*elastic / unit elastic / inelastic*).

23. Think of some real-world goods on which excise taxes are placed: liquor, cigarettes, gasoline. Do you think that the demand for these goods is relatively elastic or relatively inelastic? Why?

Consider this newspaper quotation and answer the questions that follow: “The city is planning to place a 10 percent tax on auto parking. The tax would fall on every motorist who uses a space in either the garages and the lots operated by the Public Parking Authority or in privately operated lots and garages.”

24. Draw the demand curve and the long-run supply curve for parking lots. Explain why each has the shape you show; in other words, why each is relatively elastic or inelastic.
25. Given the curves you have drawn in Question 24, show the effect of introducing a 10 percent tax: How does the equilibrium position after imposition of the tax compare with the initial equilibrium position?
26. The newspaper quotation implies that the “burden” of the tax will fall entirely upon the driver. Is this true for the case you have developed in Questions 24 and 25 above? Under what circumstances would this be true?