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**Principles of Economics**

**Study Questions -- Elasticity**

1. Indicate whether each of the following statements is true or false. *Carefully and logically* explain your responses in 1 or more sentences each. Do not repeat the statement or a slightly altered version of the statement in your explanation.

a) The demand curve for "Pepsi" is steeper than the demand curve for "All Soft Drinks."

b) The supply curve of "Apples" is steeper in the market period than it is in the short run.

c) If a 10% reduction in the price of pencils results in a 1% increase in the quantity of pencils demanded, then the demand for pencils is elastic.

d) If the demand curve for the drug AZT is perfectly inelastic, then an increase in the price of AZT will increase total revenue for the drug's producer.

2. In the land of Goshen, consumers bought 100 beach balls at a price of \$2 per beach ball. Then, when the price fell to \$1, consumers bought 900 beach balls.

a) Calculate the price elasticity of demand for beach balls using the "midpoints formula."

b) Is demand elastic or inelastic? Briefly explain.

3. The supply curve of Rembrandt paintings is perfectly inelastic (since the deceased Rembrandt can paint no more). Is this supply curve consistent with the Law of Supply? Explain in 1 or 2 sentences.

4. Here are equations representing the demand and supply curves in a fake market for Hoola Hoops:

$$Q_d = 1000 - 10P$$

$$Q_s = -5 + 5P$$

The government has imposed a price ceiling of \$10. Calculate the surplus or shortage of Hoola Hoops.

## Elasticity Study Questions – Answers

1. Indicate whether each of the following statements is true or false. **Carefully and logically** explain your responses in 1 or more sentences each. Do not repeat the statement or a slightly altered version of the statement in your explanation.

a) The demand curve for "Pepsi" is steeper than the demand curve for "All Soft Drinks."

*False. Since there are more substitutes for Pepsi than for all soft drinks, the demand curve for Pepsi is actually flatter than the demand curve for all soft drinks.*

b) The supply curve of "Apples" is steeper in the market period than it is in the short run.

*True. By definition the supply curve is vertical in the market period, and it is not vertical in the short run. A vertical line is steeper than one that is not vertical.*

c) If a 10% reduction in the price of pencils results in a 1% increase in the quantity of pencils demanded, then the demand for pencils is elastic.

*False. With a calculation we see that the price elasticity is  $1\%/10\% = .1$ . This number is less than 1, making pencil demand inelastic—not elastic.*

d) If the demand curve for the drug AZT is perfectly inelastic, then an increase in the price of AZT will increase total revenue for the drug's producer.

*True. A higher price will not affect the quantity sold, so total revenue, which equals price times quantity, will rise.*

2. In the land of Goshen, consumers bought 100 beach balls at a price of \$2 per beach ball. Then, when the price fell to \$1, consumers bought 900 beach balls.

a) Calculate the price elasticity of demand for beach balls using the "midpoints formula."

b) Is demand elastic or inelastic? Briefly explain.

$$\text{Elasticity} = (100 - 900) / [(100 + 900) / 2] \quad / \quad (2 - 1) / [(2 + 1) / 2] = 2.4$$

*Demand is price elastic, since the price elasticity is greater than one*

3. The supply curve of Rembrandt paintings is perfectly inelastic (since the deceased Rembrandt can paint no more). Is this supply curve consistent with the Law of Supply? Explain in 1 or 2 sentences.

*This is inconsistent. The law of supply says that a higher price should cause a higher supply; it does not in this case.*

4. Here are equations representing the demand and supply curves in a fake market for Hoola Hoops:  $Q_d = 1000 - 10P$        $Q_s = -5 + 5P$

The government has imposed a price ceiling of \$10. Calculate the surplus or shortage of Hoola Hoops.

$$Q_d = 1000 - 10(10) = 900$$

$$Q_s = -5 + 5(10) = 45$$

Shortage of  $900 - 45 = 855$  hoola hoops.