Elasticity of Supply and Demand
Economics – Chapters 4-5, Section 3 Outline

I. What is Elasticity of Demand
A. Elasticity is another term in economics that sounds more difficult to understand than it really is. It measures how a price _______ affects the _______ of a particular good that people want to buy.
B. Demand for a good can be elastic, inelastic, or unit-elastic. __________ means that a price change has a __________ impact on the quantity demanded. __________ means that there is a __________ change in quantity demanded when the price changes. And __________ means that the impact of a price change is __________—that is, neither major nor minor.

\[
\text{Elasticity of Demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}
\]

• How do we find out which type of demand is at work? In all cases, the type of demand has to do with the __________ between the percentage change in quantity demanded and the percentage change in price.
• When we divide the percentage change in quantity demanded by the percentage change in price, we get a __________ that is greater than 1, less than 1, or exactly 1.
• If the answer to our division problem is greater than 1, the demand is __________; if the answer is less than 1, the demand is __________; if the answer is exactly 1, the demand is __________.

II. What Determines Elasticity of Demand?
1. Number of substitutes. When there are __________ substitutes for a good, the quantity demanded is unlikely to change much if the price rises. Therefore, the demand for the good is likely to be __________. When there are many substitutes for a good, the opposite is true: the demand tends to be elastic.
2. Luxuries versus necessities. Demand for __________ tends to be __________ because people need those goods even if prices rise. Demand for __________ tends to be __________ because people will often do without those goods if prices rise.
3. Percentage of income spent on the good. If a good requires a __________ percentage of a person’s income, demand for it tends to be __________. Demand for goods that require a __________ percentage of a person’s income tends to be __________.
4. Time. When consumers have little time to __________ to a price change, demand is usually inelastic. When they have more time to respond, demand is usually elastic.

III. An Important Relationship Between Elasticity and Total Revenue
A. Elastic demand and an increase in price lead to a __________ in total revenue.
B. Elastic demand and a decrease in price lead to a __________ in total revenue.
C. Inelastic demand and an increase in price lead to a __________ in total revenue.
D. Inelastic demand and a decrease in price lead to a __________ in total revenue.

IV. Elasticity of Supply
A. Elasticity of supply is the relationship between the percentage change in quantity supplied and the percentage change in __________. 
40. __________ supply exists when the percentage change in quantity supplied (the numerator) is greater than the percentage change in price (the denominator).
41. __________ supply exists when the percentage change in quantity supplied (the numerator) is less than the percentage change in price (the denominator).
42. __________ supply exists when the percentage change in quantity supplied (the numerator) is the same as the percentage change in price (the denominator).
Elasticity Versus Inelasticity

According to the law of demand, when price rises, quantity demanded falls and when price falls, quantity demanded rises. Elasticity of demand is a measure of how much the quantity demanded of a good rises or falls due to a change in the price of the good. You can think of elastic demand as being like an elastic band - the quantity demanded of the good will stretch freely when pulled by a change in the good's price. Inelastic demand is more like a rope - the quantity demanded of the good will not stretch easily when pulled by a change in the good's price.

1. If the price of a good with elastic demand increases, which of the following describes the effect on the quantity demanded of the good? _____
   A. increases a little
   B. increases a lot
   C. decreases a little
   D. decreases a lot

2. If the price of a good with inelastic demand increases, which of the following describes the effect on the quantity demanded of the good? _____
   A. increases a little
   B. increases a lot
   C. decreases a little
   D. decreases a lot

In questions 3-6, the four factors that determine the elasticity of demand are listed. For each factor, fill in the blanks to describe how the factor affects the elasticity of demand for a good.

3. **Factor: Number of Substitutes**
   **Description:** More available substitutes tend to make demand for a good ____________ (elastic or inelastic); fewer available substitutes tend to make demand for a good ____________ (elastic or inelastic).

4. **Factor: Luxuries versus Necessities**
   **Description:** The demand for ____________ (luxuries or necessities) tends to be elastic; the demand for ____________ (luxuries or necessities) tends to be inelastic.

5. **Factor: Percentage of Income Spent on the Good**
   **Description:** The demand for goods that take a large ____________ (large or small) percentage of income tends to be elastic; the demand for goods that take a relatively ____________ (large or small) percentage of tends to be inelastic.

6. **Factor: Time**
   **Description:** The less time you have to respond to a price change in a good, the more likely it is that your demand is going to be ____________ (elastic or inelastic).

Considering the factors you listed in questions 7-9, identify the demand for the goods in questions 50 - 52 as elastic, inelastic, or unit-elastic. Explain the reason for each choice.

7. **T-Bone Steak (an expensive good):** Demand for a T-bone steak would most likely be ____________ because there are available ____________, it is a ____________ good, and it takes a relatively ____________ portion of income.

8. **New Sport Utility Vehicle:** Demand for a new SUV would most likely be ____________ because there are available ____________, it is a ____________ good, and it takes a relatively ____________ portion of income.

9. **Insulin:** Demand for insulin would be ____________ because there are no ____________ and it is an absolute ____________ for a diabetic regardless of the percentage of income spent.
In each of the cases described in questions 10-12, identify whether the demand for the good is elastic, inelastic, or unit-elastic. Write your answers on the lines provided.

10. _________________ The price of corn rises 5%, and the quantity demanded falls 15%.
11. _________________ The price of bagels rises 8%, and the quantity demanded falls 8%.
12. _________________ The price of telephones rises 10%, and the quantity demanded falls 2%.

**Elasticity and Total Revenue**

Elasticity of demand matters to sellers of goods because it relates to their total revenue ($Price \times Quantity sold = Total revenue$). Questions 13-19 relate to how the elasticity of demand for a good affects a seller's total revenue when the seller changes the price of the good. Fill in each blank with the correct answer.

13. If demand for a good is *elastic* and price increases, then total revenue will _________________ (increase, decrease or stay the same).
14. If demand for a good is *elastic* and price decreases, then total revenue will _________________ (increase, decrease or stay the same).
15. If demand for a good is *inelastic* and price increases, then total revenue will _________________ (increase, decrease or stay the same).
16. If demand for a good is *inelastic* and price decreases, then total revenue will _________________ (increase, decrease or stay the same).
17. If demand for a good is *unit-elastic* and price increases, then total revenue will _________________ (increase, decrease or stay the same).
18. If demand for a good is *unit-elastic* and price decreases, then total revenue will _________________ (increase, decrease or stay the same).
19. If a seller would like to increase revenue, the seller should (a) increase the price of the good if the demand for the good is _________________ (elastic or inelastic) or (b) decrease the price of the good if the demand for the good is _________________ (elastic or inelastic).

In each of questions 20-22, complete the table to calculate the total revenue for the good. Then fill in the blanks in the question following the table to summarize the results in each case.

20. When Edith increased the price of a good from $2 to $3, the quantity demanded rose from 100 to 110.

<table>
<thead>
<tr>
<th>Price</th>
<th>X</th>
<th>Quantity sold</th>
<th>=</th>
<th>Total revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>$2</td>
<td>100</td>
<td>$200</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>$3</td>
<td>110</td>
<td>$330</td>
<td></td>
</tr>
</tbody>
</table>

So, because revenue _________________ (rose or fell) when the price _________________ (rose or fell), demand for the good must be _________________ (elastic or inelastic).

21. When Renaldo increased the price from $10 to $12, the quantity demanded fell from 80 to 40.

<table>
<thead>
<tr>
<th>Price</th>
<th>X</th>
<th>Quantity sold</th>
<th>=</th>
<th>Total revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>$10</td>
<td>80</td>
<td>$800</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>$12</td>
<td>40</td>
<td>$480</td>
<td></td>
</tr>
</tbody>
</table>

So, because revenue _________________ (rose or fell) when the price _________________ (rose or fell), demand for the good must be _________________ (elastic or inelastic).
22. When Keiko decreased the price from $150 to $125, the quantity demanded rose from 60 to 120.

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity sold</th>
<th>Total revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>$____</td>
<td>________</td>
</tr>
<tr>
<td>New</td>
<td>$____</td>
<td>________</td>
</tr>
</tbody>
</table>

So, because revenue ________________ (rose or fell) when the price ________________ (rose or fell),
demand for the good must be ________________ (elastic or inelastic).

**Elasticity of Demand in Graphs**

In questions 23 - 25, use your understanding of elasticity of demand to decide whether the graph shows a good with elastic demand or a good with inelastic demand or a good with unit-elastic demand.

23. __________________________         24. __________________________        25. _______________

**Elasticity of Supply in Graphs**

In questions 26 - 28, use your understanding of elasticity of supply to decide whether the graph shows a good with elastic supply or a good with inelastic supply or a good with unit-elastic supply.

26. __________________________         27. __________________________         28. _______________