Price Elasticity of Demand

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   B. Cross Price

V. Application - Taxes

I. Defined

Suppose you do all your shopping at Walmart. If the price of everything increased by 50%, I would buy:

<table>
<thead>
<tr>
<th>Almost the same amount of</th>
<th>A lot less of</th>
<th>A little less of:</th>
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<tbody>
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Defined

A. Example:

What is the price elasticity of demand for cigarettes?

Interpret this number

If the government wanted to decrease smoking by 10 percent, by how much would the government have to increase the price of tobacco?
B. What determines elasticity?

C. Why might we care?

Quiz: Answer T or F

1. Demand 1 is less elastic at point B than is Demand 2.
2. Demand 2 has the same elasticity at B that Demand 3 has at point C.
3. Demand 1 has the same elasticity at A and at B.
4. Point A of Demand 1 is definitely less elastic than point C on D3.
5. Point C on Demand 3 is elastic.
II. Calculated from the demand curve: \( \eta = \frac{\% \Delta Q_x}{\% \Delta P_x} \)

A. General

What sign does it have?

At a single point, very small changes in \( P \) and \( Q \):

B. Price Elasticity and demand along a linear demand curve

Write the equation for the demand curve below:

What is the slope of the demand curve (careful with the sign)?
III. Elasticity and Total Revenue

A. General

Define total revenue (TR)

Define total expenditure (TE):

If P decreases (ex: sale on product), what happens to total revenue?

Marginal revenue (MR)
B. Elasticity and TR along a linear demand curve

<table>
<thead>
<tr>
<th>Pt</th>
<th>P</th>
<th>Q</th>
<th>η</th>
<th>TR=TE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
<td>0</td>
<td>-∞</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>1</td>
<td>-20</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>8</td>
<td>2</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>6</td>
<td>3</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>4</td>
<td>-1/2</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>5</td>
<td>-1/5</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>0</td>
<td>6</td>
<td>0</td>
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Where is TR maximized?
IV. Other elasticities

A. Income Elasticity

B. Cross-price elasticity