Unit 04

Exercise 07 - Calculating the Total Revenue and Elasticity of the Demand

This exercise aims to help students understand and apply the concept of linear demand curves by interpreting the relationship between price and quantity demanded, practicing basic algebraic operations like calculating intercepts, and determining total revenue. By incorporating each student's unique ID, the exercise personalizes learning, making it more engaging. Additionally, it encourages critical thinking and problem solving by requiring students to analyze the impact of price changes on revenue, thereby preparing them for real-world business scenarios where such calculations are essential for informed decision-making.

Settings: A company produces and sells eco-friendly water bottles. The demand for these water bottles in the market is described by the following linear demand curve: $Qd = A - 2Pd$

State your student ID: _____

Task 01: Formulate the Demand Equation

a) Determine the Current Market Price: (Pd) Calculate the current market price of the water bottles. This price is equal to the sum of the last two digits of your student ID plus either '0' or '10'.
    If the sum is a two-digit number (e.g., Student ID = 66100088; Pd = 8 + 8 = 16), use the sum as it is.
    If the sum is a single-digit number (e.g., Student ID = 66100005; Pd = 0+5 = 5), increase it by 10, so the final price will be Pd=5+10=15

b) Calculate the Intercept A: The intercept A is equal to the absolute value of the difference between the first 2 digits of your student ID and the reversed last 2 digits, plus **100**.
    Example:
    Student ID = 66100005; A = |66−50| + 100 = 116
    Student ID = 66101240; A = |66−04| + 100 = 162
    Student ID = 66100088; A = |66−88| + 100 = 122

c) Your answer: Formulate the Demand Equation: Using the calculated values, write the demand equation as:

$$Qd = \text{_____} - 2 \text{_____}.$$

Task 02: Calculate the Total Revenue (show calculation):

TR = _____.

Task 03: New Total Revenue after a Price Increased by 50% (show calculation):

New TR = _____.

Task 04: Elasticity of demand using % change method (show calculation):

Edp = _____.

Task 05: Elasticity of demand using Midpoint method (show calculation):

Edm = _____.

Task 06: Elasticity of Demand using Midpoint method is (elastic / inelastic, unit of elasticity):

Edm is _____.